

DELAWARE STATE MEDICAL JOURNAL

Official Organ of the Medical Society of Delaware

INCORPORATED 1769

VOLUME VIII
NUMBER 3

MARCH, 1936

Per Year \$2.00
Per Copy 20c

CONTENTS

THE DIAGNOSIS OF CORONARY ARTERIO- SCLEROSIS AND ITS CHIEF COMPLICA- TIONS, <i>Charles C. Wolferth, M. D.,</i> Philadelphia, Pa.	EDITORIAL	49
37	WOMAN'S AUXILIARY: A. M. A.	51
SURGERY OF TUMORS OF THE BRAIN, <i>Francis C. Grant, M. D., Philadel-</i> phia, Pa.	MISCELLANEOUS	51
44	BOOK REVIEWS	53

Entered as second-class matter June 28, 1929, at the Post Office at Wilmington, Delaware, under the Act of March 3, 1879. Business and Editorial offices, 1022 Du Pont Bldg., Wilmington, Delaware. Issued monthly.

Copyright, 1936, by the Medical Society of Delaware.

DEXTRI-MALTOSE— True Economy

It is interesting to note that a fair average of the length of time an infant receives Dextri-Maltose is five months. That these five months are the most critical of the baby's life: That the difference in cost to the mother between Dextri-Maltose and the very cheapest carbohydrate at

most is only \$6 for this entire period—a few cents a day: That, in the end, it costs the mother less to employ regular medical attendance for her baby than to attempt to do her own feeding, which in numerous cases leads to a seriously sick baby eventually requiring the most costly medical attendance.

*"The Measure of Economy
Is Value, Not Price"*

MEAD JOHNSON & COMPANY, Evansville, Ind., U. S. A.

Please enclose professional card when requesting samples of Mead Johnson products to cooperate in preventing their reaching unauthorized persons

MENINGOCOCCUS ANTITOXIN

DEVELOPED IN THE RESEARCH LABORATORIES OF PARKE, DAVIS & COMPANY

"Meningococcus Antitoxin has reduced by approximately 50 per cent the deaths from meningococcic meningitis at Cook County Hospital."

*Journal of the American Medical Association,
Volume 104, page 980, March 23, 1935.*

THE introduction of Meningococcus Antitoxin is a significant contribution to the therapy of contagious diseases. Extensive biological and clinical research has led to the development of this true antitoxin, markedly effective in lowering the mortality in meningococcic meningitis.

Accepted for inclusion in New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association.

Parke, Davis & Co. - Detroit, Mich.

CANNED FOODS AND THE PUBLIC HEALTH

II. Iron and Tin Salts

• The question is sometimes raised as to whether the metallic salts which canned foods may acquire from contact with tin containers are objectionable from the standpoint of public health. We are glad to present the facts in answer to this question.

The modern "sanitary style" can is manufactured from "tin plate". As the name implies, tin plate is made by plating or coating thin steel sheets with pure tin. This tin coating cannot be made absolutely continuous; under the microscope, minute areas can be noted in which the steel base is exposed.

Foods packed in plain or unenameled cans are, therefore, exposed to iron and tin surfaces. In enameled cans, foods are mainly in contact with inert lacquers baked onto the tin plate at high temperatures. However, because of minute abrasions in the enamel covering, unavoidably introduced during fabrication of the can, foods in enameled cans may also have limited contacts with iron and tin surfaces.

It is common knowledge that canned foods may acquire small amounts of these metals from contact with their containers. The acquisition of iron and tin salts in this manner is an electrochemical phenomenon (1); and the amounts of these metallic salts thus acquired will depend, among other factors, upon the character of the food. In general, the acid foods tend to take up more of these

metals; especially when air is admitted after the can is opened. However, the quantities of tin or iron present in canned foods, as a result of reaction with the container, are small; the analytical chemist reports these amounts in "parts per million".

As far as iron is concerned, it is commonly accepted that the amounts of this element—recognized as essential in human nutrition—which may be present in canned foods, are innocuous.

As to the tin salts which may be present in canned foods, the Department of Agriculture has authorized the following statement as the result of its own investigation:

"Our own experimental work, involving the ingestion of far larger amounts of tin than any previously reported, and supported by the experimental evidence of other investigators, leads us to the conclusion that tin, in the amounts ordinarily found in canned foods and in the quantity which would be ingested in the ordinary individual diet, is for all practical purposes, eliminated and is not productive of harmful effects to the consumer of canned foods." (2)

It may therefore be stated that the amounts of tin and iron salts normally present in commercially canned foods are without significance as far as possible hazard to consumer health is concerned.

AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) Kohman and Sanborn, Ind. Eng. Chem. 20, 76, 1373 (1928); *ibid.*, 22, 616 (1930).

(2) "Food-Borne Infections and Intoxications", F. W. Tanner, Twin City Pub. Co., Champaign, Ill. 1935, p. 90.

This is the tenth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.



The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

Behind **MERCUROCHROME**

(dibrom-oxymercuri-fluorescein-sodium)



is a background of

Precise manufacturing methods insuring uniformity

Controlled laboratory investigation

Chemical and biological control of each lot produced

Extensive clinical application

Thirteen years' acceptance by the Council of Pharmacy and Chemistry of the American Medical Association



A booklet summarizing the important reports on Mercurochrome and describing its various uses will be sent to physicians on request.

Hynson, Westcott & Dunning, Inc.
BALTIMORE, MARYLAND

Important to Your Babies!



Larsen "Freshlike" Strained Vegetables are first quality garden fresh vegetables cooked, strained and sealed under vacuum to protect vitamins and mineral salts. For further protection we seal in special enamel lined cans.

All Varieties
10c
Per Can

LARSEN'S
"Freshlike"
Strained Vegetables

THE LARSEN COMPANY, Green Bay, Wis.

-- SALES AND SERVICE --
- o f -

QUALITY MERCHANDISE

Radios - Refrigerators
Washers - Cleaners
All Electrical Appliances

REBURN RADIO STORE, Inc.

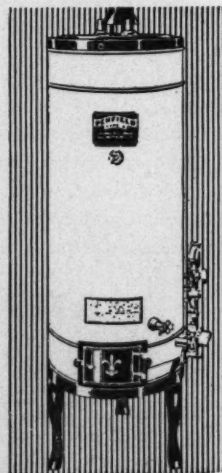
"The Store-Of-Service"

2929 MARKET ST. - PHONE 2-0951
WILMINGTON - DELAWARE

Real Automatic Water Heating by GAS

**Economical
Sure
Fast**

10c a day will supply 50 gallons
of Hot Water for less than the
cost of a pack of cigarettes



DELAWARE POWER & LIGHT CO.

For restlessness and irritability

SOLLMANN (A Manual of Pharmacology, 4th Ed. Saunders, p. 774), discussing the therapeutic uses of dialkyl barbiturates, says they have "a wide variety of applications: To secure sleep, to dull worry and apprehension and to calm nervousness and obtain tranquillity and rest in conditions ranging from 'overwrought nerves' through drug addictions, hyperthyroidism, mania, chorea, and epilepsy; . . . they allay the apprehension and greatly reduce the risk of operation."

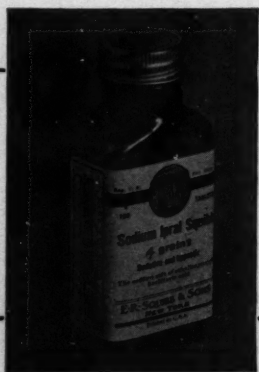
Ipral Sodium (sodium ethylisopropylbarbiturate Squibb) is a dialkyl barbiturate which is rapidly and readily absorbed. It produces a sleep closely resembling the normal and usually free from deleterious after-effects. The therapeutic dose of Ipral Sodium is small and since excretion (by the kidneys) is prompt, undesirable cumulative effects may be avoided by proper regulation of the dosage.

Ipral Sodium is supplied in $\frac{3}{4}$ gr. tablets as a sedative, 2 gr. tablets for use as a sedative and hypnotic, and in 4 gr. tablets for pre-anesthetic medication.

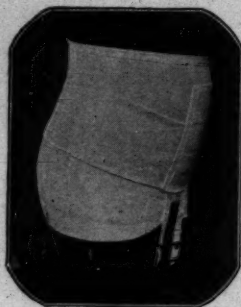
Tablets Ipral Amidopyrine (2 gr. Ipral, 2.33 gr. Amidopyrine Squibb) provide both an analgesic and a sedative effect.

Both of these Ipral Products may be obtained in vials of 10 and bottles of 100 and 1000 tablets. For descriptive literature address the Professional Service Department, 745 Fifth Avenue, New York.

E·R·SQUIBB & SONS, NEW YORK
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.



IPRAL Sodium

Trademark
Registered**STORM**Trademark
Registered**Binder and Abdominal Supporter**

Gives perfect up-lift. Is worn with comfort and satisfaction. Made of Cotton, Linen or Silk. Washable as underwear. Three distinct types, many variations of each. Each belt is made to order.

The Picture Shows "Type N"

Storm belts adaptable to all conditions. Ptois, Hernia, Pregnancy, Obesity, Sacro-Iliac Relaxations. High and Low Operations, etc.

Ask for Literature

KATHERINE L. STORM, M.D.

Originator, Owner and Maker

1701 Diamond St.

Philadelphia

IN THE WILMINGTON
**MEDICAL ARTS
BUILDING—**
Professional Offices

INCLUDE

Heat
Light
Current
Hot Water
Gas
Compressed Air
Janitor Service

SUITES

AS LOW AS

\$40.52

PER MONTH

EMMETT S. HICKMAN

RENTAL AGENT

203 W. 9th St. - - - Phone 8535

BLUE**vs.****GREEN SMOKE**

A CLAIM that one cigarette is better because its smoke is green while that from all others is blue—would carry no weight unless it could be proved the green smoke is better for the smoker than blue smoke.

In the same light should be viewed claims of differences in manufacture. Philip Morris are made different—but only Philip Morris have been scientifically proved, because of that difference, to be less irritating than other cigarettes.*

Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245*

Laryngoscope 1935 XLV, 149-154*

N. Y. State Jour. Med. 1935, 35—No. 11,590*



In Philip Morris cigarettes, only diethylene glycol is used as the hygroscopic agent. To any Doctor who wishes to test the cigarettes for himself, the Philip Morris Company will gladly mail a sufficient sample on request below.**

For exclusive use of practising physicians

PHILIP MORRIS & CO. LTD. INC.
119 FIFTH AVENUE NEW YORK

Absolutely without charge or obligation of any kind, please mail to me

* Reprint of papers from

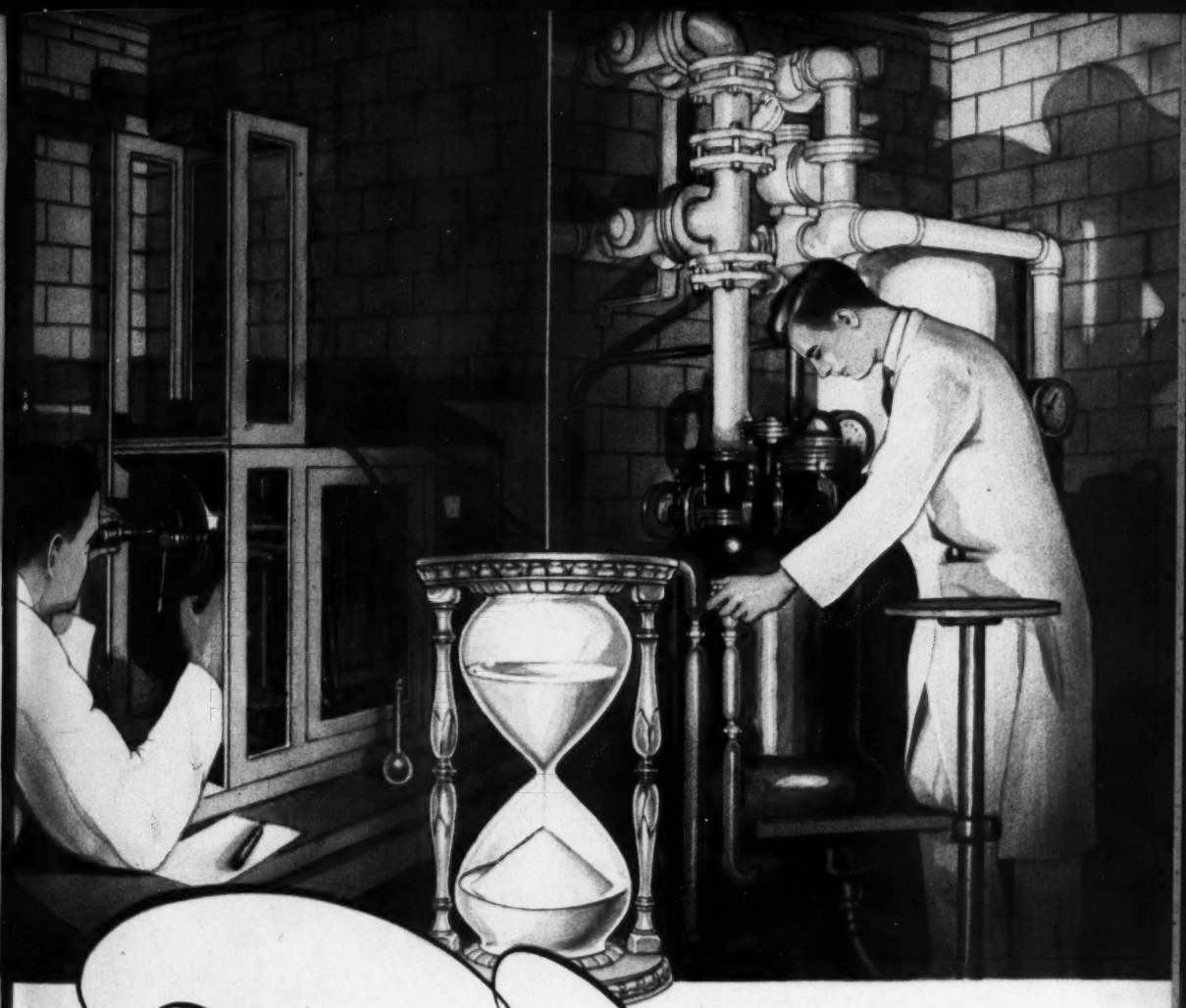
N. Y. State Jour. Med. 1935, 35—
No. 11,590; Laryngoscope 1935 XLV,
149-154. Proc. Soc. Exp. Biol. and
Med., 1934, 32, 241-245. ☐

** For my personal use, two packages of
Philip Morris Cigarettes, English Blend. ☐

SIGNED: _____ **M. D.**

ADDRESS _____

CITY _____ STATE _____



Time and Chance

Time and chance play an important role in discovery and invention. In the medical field, however, these factors can often be reduced by co-ordinating the work of physicians, chemists, biologists, and pharmacologists provided with suitable laboratory facilities. » » In the development of promising medical discoveries, the Lilly Research Laboratories and the associated large-scale production laboratories of Eli Lilly and Company provide investigators with the best known means for reducing time and eliminating chance.

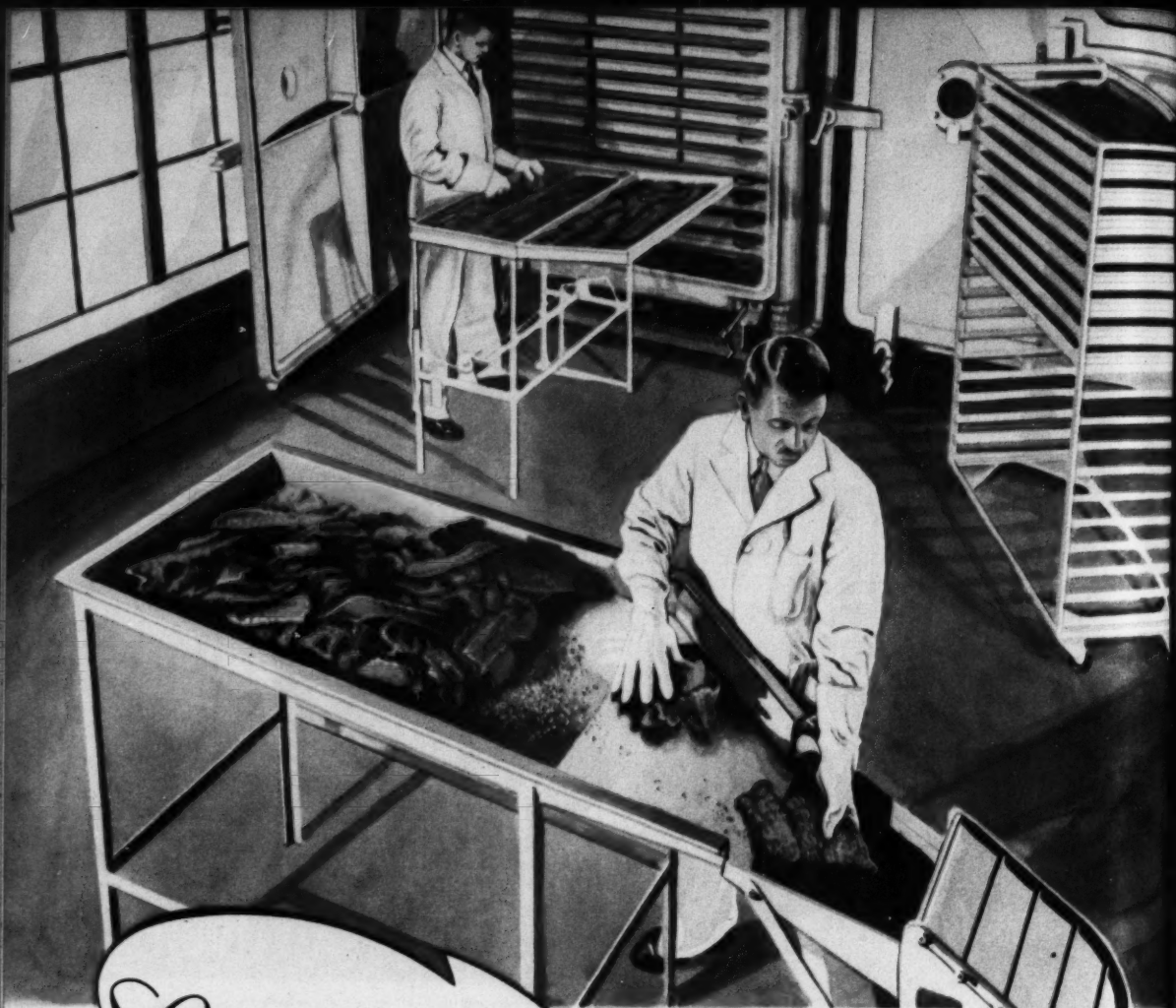


Makers of
Medicinal Products
Since 1876

Eli Lilly and Company

INDIANAPOLIS, INDIANA, U.S.A.

THE WILL TO ACHIEVE • THE FACILITIES TO PRODUCE



Grinding Dehydrated Liver

Concentrated THERAPEUTIC POTENCY



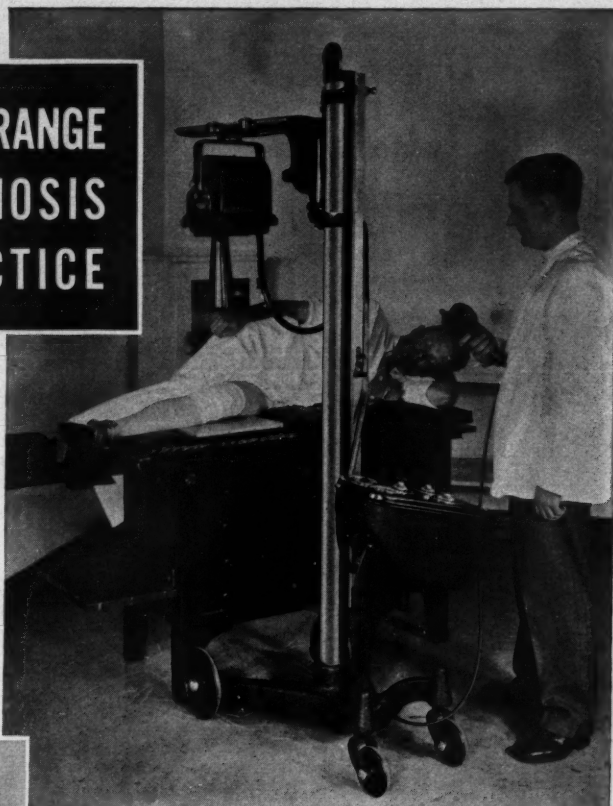
Clinical effects exerted on known cases of pernicious anemia by twelve Pulvules Extralin — liver-stomach concentrate, Lilly—containing a total of approximately 6 Gm. of substance, lie within the range of those induced by the administration of from 200 to 275 Gm. of fresh, raw liver. » » Pulvules Extralin, therefore, represent a concentrated therapeutic potency of forty times their weight of fresh liver. They are tasteless, easy to carry. They provide adequate dosage and the full therapeutic activity of raw liver without its limitations.

Eli Lilly and Company
INDIANAPOLIS, INDIANA, U. S. A.

THE WILL TO ACHIEVE • THE FACILITIES TO PRODUCE

FOR A PRACTICAL RANGE OF X-RAY DIAGNOSIS IN OFFICE PRACTICE

Physicians Acclaim Quality of Work Produced with G-E Model "D" Oil-Immersed Shock Proof X-Ray Unit



The Model "D" Unit, mobile type, can be used in any part of the office or building. This view shows how the office examination couch may be utilized for radiography with the unit.



This is the "DRF" Unit, a combination of the Model "D" with an x-ray table for radiographic and fluoroscopic diagnosis. Here the tube head has been shifted along the floor rails to the foot of the table, for vertical fluoroscopy.

● In the final analysis, an x-ray unit must be judged by the quality of results obtained, for the simple reason that diagnosis is based on what it enables you to visualize in the radiograph or the fluoroscopic screen.

The Model "D" Unit has become widely popular in office practice because it offers a practical range of diagnostic service, in the most compact form, with the utmost flexibility of application, simplicity of operation, and consistent performance. All this in addition to complete safety against high voltage shock, and a resulting quality of work in which hundreds of Model "D" users take justifiable pride.

Not until you have thoroughly investigated the possibilities of this apparatus can you really appreciate its value in routine office practice. Address Dept. A53, for full details, including the nominal price and convenient terms of payment which place it within your means.

**GENERAL  ELECTRIC
X-RAY CORPORATION**

2012 JACKSON BLVD,

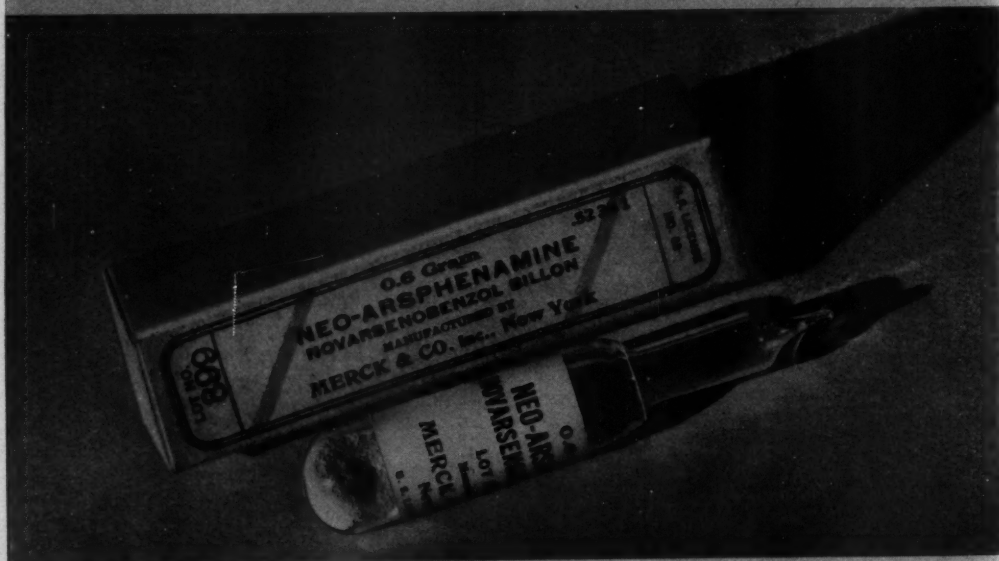
CHICAGO, ILLINOIS

THE TREATMENT OF EARLY SYPHILIS

Basic Principles suggested by
Five University Clinics in collaboration
with the U. S. Public Health Service

- The use of an arsphenamine as the foundation of the treatment.
- The use of a heavy metal as an adjuvant (preferably bismuth intramuscularly).
- Continuation of treatment without a rest period for a period of a year after all symptoms and signs of the disease have disappeared.

The use of Neo-arsphenamine Merck in the Continuous Method of Treatment may be relied upon to produce satisfactory results.



MERCK & CO. INC.
RAHWAY, N. J.

Please send me detailed information relative to THE CONTINUOUS METHOD OF TREATMENT FOR EARLY SYPHILIS
and a sample of

★
NEO-ARSPHENAMINE MERCK

NAME _____ M. D. CITY _____

STREET _____ STATE _____

"PEACE OF MIND"

Assured by

Our Physicians' and Surgeons' Liability Insurance

Which

Provides Complete Protection for Professional Acts

"We urge you to read the comment on Page 13 of the January, 1936 issue having to do with 35,000 suits, etc."

J. A. MONTGOMERY, INC. INSURANCE

Du Pont

WILMINGTON Building DELAWARE

Phone 6561

THE LAUREL SANITARIUM

WASHINGTON BOULEVARD MIDWAY BETWEEN BALTIMORE AND WASHINGTON

LAUREL, MARYLAND



AEROPLANE VIEW

163 ACRES

ESTABLISHED 1905

NERVOUS AND MENTAL CASES

INDIVIDUAL TREATMENT

ALCOHOLIC AND DRUG HABITS

AMPLE FACILITIES

PHONE LAUREL 125

JESSE C. COGGINS, MEDICAL DIRECTOR

The
PHILADELPHIA COUNTY
MEDICAL SOCIETY

announces a

POST GRADUATE INSTITUTE

to be held at the

Bellevue-Stratford Hotel in
PHILADELPHIA
April 20 to 24, 1936

A program of great interest to the members of the profession, particularly those in general practice, has been prepared.

The lecturers have been selected from the foremost teachers in this great medical center.

Arrangements have been made with all railroads for special rates. Consult your railroad agent or write us.

For complete program and further information address

The Philadelphia County Medical Society

Post Graduate Institute

21st and Spruce Streets, Philadelphia, Pa.

"ALCLUYD"

DEVON, PENNSYLVANIA

Private Hospital and Sanatorium With Cottages

A private hospital delightful and homelike situated in park on thirty acres, 17 miles from Philadelphia.

Nervous diseases and general invalidism

SCIENTIFIC—EXCLUSIVE—THOROUGH—RELIABLE—ETHICAL

Individual care and treatment only. "No group nursing."



ESTABLISHED OVER THIRTY YEARS

Dr. E. A. Ryder, Resident Physician

Grace G. Kelso Ryder, Manager

Write for information. P. O. Box 97, Berwyn, Pa.—P. O. Box 303, Devon, Pa.

PREFERRED!

●Farina is a preferred cereal because it combines high food-energy content with exceptional digestibility.

PILLSBURY'S Farina is preferred because the Pillsbury name is an assurance of highest quality and uniformity.



PILLSBURY'S FARINA

Creamy hearts of choicest wheat

RIVER CREST SANITARIUM

ASTORIA, L. I., N. Y. CITY

Est. 1896 by John Joseph Kindred, M. D.

Sanitarium Phone: Astoria 8-0820

HAROLD E. HOYT, M. D., Physician in Charge

JOHN CRAMER KINDRED, M. D., Consultant

For NERVOUS and MENTAL DISEASES with a separate, attractive accommodation for ALCOHOL and DRUG HABITUÉS. A homelike private retreat, located in a large park overlooking N. Y. City. Six separate buildings for patients. Easily accessible by auto; 20 minutes from Grand Central Station by rapid transit lines. Hydro and Electro Therapy Massage. Arts and Crafts. Modern equipment. All the advantages of N. Y. City medical consideration. Terms moderate for attractive accommodations. On A. M. A. Registered Hospital List.

The VEIL MATERNITY HOSPITAL

WEST CHESTER, PENNA.

Strictly private, absolutely ethical. Patients accepted at any time during gestation. Open to Regular Practitioners. Early entrance advisable.

Rates Reasonable

See P. V. 1.



For Care and Protection of the Better Class Unfortunate Young Women

Located on the Interurban and Penna. R. R. Twenty miles southwest of Philadelphia.

Write for booklet

THE VEIL
WEST CHESTER, PENNA.

TEN MILKS for INFANT FEEDING

but **KARO**
is a
**UNIVERSAL
MODIFIER**

	Milks	Indication
1	Whole Milk	Normal Feeding
2	Skimmed Milk	Infection Vomiting Diarrhea
3	Top Milk	Malnutrition Constipation
4	Soft Curd Milk	Intolerance Indigestion
5	Evaporated Milk	Prematurity Marasmus Eczema
6	Dried Milk	Intolerance Allergy Travelling
7	Acid Milk	Marasmus Diarrhea Celiac Disease
8	Protein Milk	Diarrhea Celiac Disease
9	Butter-Flour Mixture	Marasmus
10	Goat's Milk	Allergy

ARTIFICIAL feeding consists of cow's milk modified to the degree of adequacy of breast milk. The types of formulæ devised appear different—but successful mixtures contain approximately the same distribution in protein, carbohydrate and fat. Two-thirds of the total calories are supplied in milk and one-third in added carbohydrate. The formulæ contain 10-20% of the calories in protein, 20-30% in fat and 50-70% in carbohydrate.

Most infants tolerate whole milk. But those with irritable gastro-intestinal tracts, limited digestive capacities or allergic sensitivities, require milk adapted to their low tolerance. As a result, milk has been altered chemically in various ways to make it especially suitable for each type of infant feeding problem. The adjacent column reveals indications for various milks.

But the ten milks available for infant feeding can be safely modified with Karo. It is adapted to every type of formula devised. Karo consists of dextrins, maltose and dextrose (with a small percentage of sucrose added for flavor) practically free from protein, starch and minerals. Karo is a non-allergic carbohydrate, not readily fermentable, well tolerated, readily digested, effectively utilized and economical for both the baby and the budget.

Corn Products Consulting Service for Physicians is available for further clinical information regarding Karo. Please Address: Corn Products Sales Company, Dept. S-3, 17 Battery Place, New York City.



REFERENCES:

- Kugelmass, Clinical Nutrition in Infancy and Childhood, (Lippincott).
Marriott, Infant Nutrition, (Mosby).
McLean & Fales, Scientific Feeding in Infancy, (Lea & Febiger).

When a Liquid Vasoconstrictor is Indicated

Prescribe a Truly Economical Vasoconstrictor

Your patients will appreciate the very moderate prescription price of Benzedrine Solution—one of the least expensive of liquid vasoconstrictors.

But the physician realizes that true economy is measured in terms of something more than price alone. . . . And Giordano has shown that "Benzedrine in a 1% oil solution . . . gave a shrinkage which lasted approximately 18% longer than that following applications of a 1% oil solution of ephedrine."—(*Penna. State Med. J.*, Oct., 1935.)

Scarano previously reported (*Med. Record*, Dec. 5, 1934), "The secondary reactions following the use of Benzedrine were less severe and less frequent than those observed with ephedrine."

BENZEDRINE* SOLUTION

AN ECONOMICAL VASOCONSTRICTOR

For shrinking the nasal mucosa in head colds, sinusitis, and hay fever. Issued in 1 ounce bottles for prescription dispensing, and in 16 ounce bottles for office, clinic and hospital use.



* Benzyl methyl carbinamine 1% in liquid petrolatum with $\frac{1}{4}$ of 1% oil of lavender.

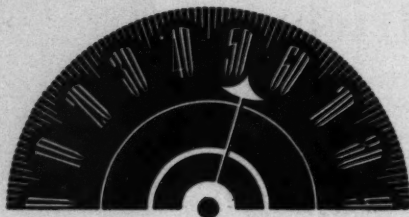
SMITH, KLINE & FRENCH LABORATORIES, PHILADELPHIA, PA.

ESTABLISHED 1841

ELI LILLY AND COMPANY

FOUNDED 1876

Makers of Medicinal Products



The Diabetic Over Fifty

Coronary sclerosis is prevalent among older diabetic patients and it has been suggested that all diabetics over fifty years of age be treated as potential heart cases. Since an adequate blood-sugar level may be essential to cardiac nutrition, when Insulin is given in such cases there should be ample "coverage" with carbohydrate.

Iletin (Insulin, Lilly), the first Insulin commercially available in the United States, is supplied through the drug trade in 5-cc. and 10-cc. vials.

Prompt Attention Given to Professional Inquiries

PRINCIPAL OFFICES AND LABORATORIES, INDIANAPOLIS, INDIANA, U. S. A.

DELAWARE STATE MEDICAL JOURNAL

*Owned and Published by the Medical Society of Delaware
Issued Monthly Under the Supervision of the Publication Committee*

Volume VIII
Number 3

MARCH, 1936

Per Year \$2.00
Per Copy 20c

THE DIAGNOSIS OF CORONARY ARTERIOSCLEROSIS AND ITS CHIEF COMPLICATIONS*

CHARLES C. WOLFERTH, M. D.**
Philadelphia, Pa.

Classification is useful in science in proportion to its help in placing facts in their proper relations to each other and revealing gaps in knowledge. Good classification is an instrument for consolidation of scientific advances, for precision of thought and expression, and for stimulating research. In no field has classification proven more indispensable than in medicine. Thus, satisfactory diagnosis is impossible without adequate classification of diseases. Recognizing this fact, the American Heart Association during recent years has fostered a movement for more complete diagnosis of cardiovascular diseases than had been customary in the past. As a part of this movement, a system of classification was devised with etiological, anatomical, physiological and functional divisions. According to this system, a diagnosis is not regarded as complete unless it includes all four categories. The physician who tries to make this fourfold diagnosis is compelled to adopt a broader point of view and make a more thorough study of his patient than if he were satisfied with a less complete diagnosis. It has the further advantage of exposing to fuller view the deficiency of medical knowledge regarding many conditions, thus furnishing a constant challenge to our ignorance. However, it must be admitted that the diagnostic scheme is far from perfect. Possibly an example will clarify this point. If a patient develops coronary occlusion, an etiological diagnosis of coronary arteriosclerosis is permitted. While coronary disease may properly

be regarded as an etiological factor in the pathogenesis of coronary occlusion, nevertheless from a broader point of view of such a case, coronary sclerosis should be regarded as the fundamentally important anatomic diagnosis rather than an etiological diagnosis. The important etiological diagnosis would be the cause of the coronary arteriosclerosis. It is scarcely necessary to point out the deficiency of our knowledge in this field. As practitioners, however, we have done our duty from the diagnostic viewpoint, when we have completed our diagnostic analysis as far as careful study of the patient with all available means at our command permits in the light of contemporary knowledge.

The keystone of cardiovascular diagnosis is the anatomic diagnosis. Studies in etiology must utilize anatomic diagnosis as their foundation. While it is possible to detect physiological aberrations and impairment of function without a knowledge of the underlying anatomic alteration, the significance of such derangements can be much better estimated in the light of the anatomic diagnosis. It is unfortunate that our knowledge concerning the etiology of coronary arteriosclerosis is so limited. Progress in this field would probably lead to more effective measures for the prevention or possible arrest of the disease.

Coronary arteriosclerosis from the clinical viewpoint divides itself into the following stages: (1) A latent stage during which no symptoms are present, although the heart may be considerably damaged. (2) A stage of mild symptoms such as easy fatigability, diminution of exercise tolerance, indigestion, vague discomfort in the chest, or perhaps merely an indefinable loss of the sense of well being, and (3) a stage of partial or complete disability. In this stage the predominating clinical phenomena may be those of (a) an-

*Read before the Medical Society of Delaware, Wilmington, October 9, 1935.

**Professor of Clinical Medicine, University of Pennsylvania.

gina pectoris, (b) coronary occlusion, or (c) circulatory insufficiency with or without congestive failure.

The latent or asymptomatic stage. It is quite probable that most patients with coronary arteriosclerosis go through a latent stage lasting for years. As a rule, the disease is not discovered during this stage. There are several reasons for this. (1) Only a small minority of presumably well individuals offer themselves for examination. (2) Physical examination frequently fails to reveal evidence of coronary artery disease even though advanced. (3) Functional tests of the heart have not proven of much diagnostic value in detecting coronary disease. (4) Electrocardiography, although an extremely valuable procedure for detecting changes in the myocardium does not reveal changes in the arteries themselves. Until actual myocardial damage occurs, electrocardiograms furnish no evidence of coronary arteriosclerosis.

If, however, diagnostic surveys are made of groups of individuals beyond the age of 40, it is found that latent coronary arteriosclerosis is far from rare. Electrocardiographic examination proves to be the most useful procedure for detecting such lesions. If it is omitted, the majority of cases are apt to be missed. In one group of 150 active corporation executives, studied with Dr. T. Grier Miller, the age range was from the early thirties to sixty-five. Of these, twenty-four showed definite electrocardiographic evidence of myocardial change and twelve additional were placed in a doubtful category. Most of these men regarded themselves as perfectly well. Some, however, had hypertension and evidences of arteriosclerosis in the vessels that were accessible to direct examination. These studies were begun five years ago and since that time several of the men with abnormal electrocardiograms have developed clinical evidences of heart disease. It is of interest, however, that one of the group with normal electrocardiograms developed coronary occlusion about a year after a normal tracing had been obtained. This man, however, had shown considerable cardiac enlargement and advanced aortic arteriosclerosis on fluoroscopic examination.

The important point to be made regarding

the diagnosis of latent or asymptomatic coronary sclerosis is that clinical examination is totally inadequate for its detection. Both electrocardiography and x-ray study of the heart and great vessels, preferably orthodiagraphy should be made. Nevertheless, careful and complete history and physical examination are fundamental in the study of any patient and the findings obtained by special methods of examination are to be interpreted in the light of clinical findings. Nothing can lead to more grotesque error than the attempt to interpret laboratory results independently of the clinical picture.

In summary, the following points may be made regarding the recognition of coronary sclerosis in the latent or asymptomatic stage: (1) Clinical examination alone is inadequate. (2) Electrocardiographic and x-ray study is necessary. (3) Unless actual changes in the myocardium have occurred, the special methods will also fail to reveal evidence of coronary disease. Thus we will continue seeing sudden death from unsuspected heart disease although the frequency of this occurrence can be tremendously lessened by adequate examinations. However, ordinary periodic or health examination is not enough since so many of the cases escape detection.

The stage of mild symptoms. In this stage the diagnostic difficulty may be as great as in the asymptomatic stage. Nevertheless, it is possible to elicit certain symptoms which may arouse suspicion of cardiac involvement. Among the most important of these are easy fatigability, diminished tolerance to exertion especially breathlessness on exertion that had previously been well borne, cardiac consciousness with palpitation or vague precordial distress, digestive disturbances, particularly flatulence, insomnia or vague nervous disturbances. All of these symptoms may have a variety of causes; it is advisable not to neglect coronary disease as one of the possibilities. As in the latent or asymptomatic stage, electrocardiographic and x-ray studies are practically indispensable. A completely negative examination is to be regarded as evidence against the view that the symptoms are cardiac in origin although it does not rule out this possibility. Conversely, the positive finding of evidences of disease favors

the view that the symptoms are cardiac in origin. In any event, the discovery of evidence of heart disease whether or not the symptoms present are caused by it, justifies the physician in taking whatever steps are possible to protect his patient.

The stage of partial or complete disability. For convenience the cases with disability may be considered under the three clinical categories mentioned above, namely, angina pectoris, coronary occlusion, and circulatory insufficiency. These groups, however, are by no means mutually exclusive, and do not constitute a classification. The patient with angina pectoris may develop circulatory insufficiency or coronary occlusion or both. Angina pectoris is not infrequently the precursor of coronary occlusion; on the other hand, one who has survived an attack of coronary occlusion is liable to attacks of angina pectoris. Furthermore, circulatory insufficiency may be initiated by coronary occlusion.

Angina Pectoris. Little can be added at this time to Heberden's original description of the symptoms of angina pectoris. The pain is usually described by the patient as constricting or viselike, burning, boring, or an intolerable feeling of fullness in the chest. Sharp or lancinating pains are rarely anginal. The pain does not suddenly reach its climax. The intensity as it enters the consciousness of the victim is usually not great, but it rapidly increases until it reaches its maximum. After variable periods, usually one to fifteen minutes, it begins to subside although it may persist as a dull pain for a considerable period of time. It usually centers about the substernal area although less commonly it may be precordial. It may radiate to the back, the neck, down the left arm, the right arm, or both arms. The pain almost never extends below the epigastrium. The pulse rate may be unaffected or somewhat elevated. The blood pressure is usually slightly and occasionally markedly elevated. The attacks are brought on by exertion or by emotional excitement, and in certain cases (tabacco angina, extremely nervous individuals, or advanced coronary disease) without any obvious precipitating factor. They may arouse the patient from sleep. As a rule, the victim prefers to sit quietly during the attack.

Noisiness and threshing about are exceptional. After the attack passes off most patients state that they feel quite as well as before, although severe attacks may cause a temporary feeling of exhaustion. Nervous patients may feel exhausted after mild attacks.

Much energy and printer's ink have been consumed in the past speculating on the pathogenesis of angina pectoris. The chief value of these learned and frequently controversial essays has been to demonstrate the futility of substituting speculative reasoning for the much more laborious but less flashy procedure of investigation. Our present knowledge of the pathogenesis of angina pectoris is far from complete. Nevertheless, it has been learned, thanks to the use of objective methods, that temporary inadequacy in blood supply to a part of the heart muscle is an important factor in its production.

The diagnosis of angina pectoris is made on the basis of the history; consequently a detailed description of the attacks is necessary. A careful effort should always be made to find some other explanation for the pain. The value of physical examination and laboratory studies is twofold: (1) the search for evidence of cardiovascular abnormalities, and (2) the effort to find other possible causes for the attacks. Thus, if the history conforms reasonably closely to the pattern of angina pectoris, the finding of evidence of degenerative cardiovascular disease, bolsters the diagnosis. Negative examination, however, including negative electrocardiogram and x-ray studies of the heart do not rule out angina pectoris. The effect of nitrites (amyl nitrite or nitroglycerin) may be helpful as a diagnostic test, although it must be remembered that (1) angina pectoris is not the only pain that may be relieved by nitrites, and (2) nitrites do not invariably relieve anginal pains. About half the cases will develop specific changes in the electrocardiogram during attacks of pain, but this procedure is scarcely practicable as a diagnostic aid for general use.

Coronary Occlusion. This condition has been so frequently described during the past few years that it scarcely seems necessary to repeat a full description of it here. It is remarkable how blind we all were regarding

coronary occlusion up to about fifteen years ago, despite the fact that von Leyden had described the clinical and necropsy findings in a series of cases as long ago as 1884. It was not until after Herrick's second paper that interest was aroused. In order to appreciate the remarkable change of thought that has occurred, one needs only to go over old records filed under the diagnosis of chronic myocardial disease. Restudy of these case records, particularly in those in which electrocardiograms were included, reveals that not infrequently the determining factor in cardiac breakdown was an attack of coronary occlusion, although this was not suspected at the time. Our failure to recognize coronary occlusion as a clinical entity a number of years ago makes one wonder what other recognizable conditions are still being missed.

At present there are few practitioners who would fail to recognize coronary occlusion provided the patient had intense prolonged substernal pain, followed by circulatory collapse, fever, leucocytosis, and a pericardial friction rub. It is the cases with relatively minor symptoms that are apt to go unrecognized. Pain of the anginal type and distribution lasting more than a hour should not be dismissed without considering the possibility of coronary occlusion. Circulatory collapse, fever and leucocytosis are frequently absent. These apparently depend more on the extent of myocardial infarction than on coronary occlusion per se. In many cases there is no material drop in blood pressure, no tachycardia, fever, leucocytosis or friction rub.

An electrocardiogram should be made in every case suspected of coronary occlusion. It is at least as important as an x-ray of the chest in a patient suspected of pulmonary tuberculosis. The electrocardiogram supplements but does not replace clinical examination. One must, however, recognize the limitations of clinical examination.

It is not my purpose here to discuss the technical aspects of electrocardiography. The value of this procedure in the diagnosis of coronary occlusion has been greatly increased by supplementing the conventional limb leads with one or more chest leads. Nevertheless, no technique of electrocardiography has been

devised to reveal the present of coronary occlusion unless the circulation of blood in the heart muscle is diminished below its actual requirements. Consequently, if only a small vessel is occluded and collateral circulation is adequate there is no reason why the electrocardiogram should be significantly altered. Prior to the use of chest leads, actual infarction of the heart muscle was frequently missed even during the acute stage. During the past four years since chest leads have been used routinely, in our department, as a supplement to limb leads in the study of cases suspected of coronary occlusion, we have escaped the embarrassment of having the pathologists show us acute infarcts we had missed. Furthermore, there has been no failure to find infarcts at necropsy after the clinical diagnosis had been made. Thus it appears that not only has electrocardiography become a highly dependable method for the detection of acute infarcts but with proper safeguards it is almost equally dependable in ruling out infarction. My colleague, Dr. Francis C. Wood, and I have recently in the *Clinical Concepts of Cardiovascular Disease* published by the American Heart Association, summarized the electrocardiographic criteria that we have found useful for the recognition of infarction.

In addition to the value of electrocardiograms for the study of recent infarction, they have also proven useful in diagnosis of ancient infarction. However, as the scar contracts electrocardiographic deviations fade out and the pattern tends to return toward the normal. Nevertheless, it is exceptional for the electrocardiogram to become completely normal. Only a few days ago I saw a patient who had coronary occlusion in 1928, proven by electrocardiogram. He has had no illness since that time yet his tracing still shows finding pathognomonic of ancient infarction involving the anterior wall of the left ventricle.

It is scarcely necessary to emphasize to this audience the importance of differentiating coronary occlusion from the various conditions with which it may be confused. It is a tragic blunder to operate on a patient with acute coronary occlusion with the mistaken idea that some upper abdominal catastrophe has occurred. It is also a serious error to

permit a man who has had recent coronary occlusion with mild symptoms to continue going about his business. On the other hand, one should not make a mistaken diagnosis of coronary occlusion when none has occurred. Aside from the imposition of a useless prolonged period of rest and equally useless restriction of activities thereafter, the mental effects on the patient may be devastating. It requires almost perfect mental equilibrium to avoid being seriously disturbed by such a diagnosis.

Coronary sclerosis with circulatory insufficiency. The arresting features of angina pectoris and coronary occlusion attract our attention so much that we may neglect the obvious importance of the heart as a pump. The majority of the victims of coronary sclerosis sooner or later develop enough weakness of the heart muscle to lead to circulatory insufficiency. This includes most of the sufferers from angina pectoris and coronary occlusion, except those who die either suddenly or from some intercurrent condition. Consequently, inability of the heart to do its share in getting the blood circulated efficiently is by far the most important end-result of coronary sclerosis. Most of the elderly sufferers from cardiac insufficiency have coronary sclerosis as the background for their condition.

The diagnosis is easy in the advanced stage and need not be elaborated here. It is in the earlier stages when more constructive measures are possible that diagnosis should be made. The symptoms may be quite indefinite in the early stages. The most important are diminished tolerance to exercise especially shortness of breath, fatigability, digestive disturbances, or heart consciousness. The last may take the form of palpitation, a feeling of fullness or aching. Dizziness or insomnia are sometimes the first symptoms. Occasionally an attack of nocturnal dyspnea may be the first intimation that anything is wrong.

Physical examination may fail to reveal anything of significance so long as there are no evidences of congestive failure. Definite cardiac enlargement, the development of murmurs or arrhythmia which had not been present before, accentuation of the aortic second

sound, elevation of systolic or diastolic blood pressure or what is more significant, narrowing of pulse pressure, should be regarded as danger signals. An intensive study of the first heart sound for many years has convinced us that but little importance can be placed on changes in the first sound as evidence of myocardial damage. When the first sound weakens as a result of myocardial failure, other findings are so conspicuous that he who runs may read.

Perhaps the most frequent mistake made is to place too much reliance on a negative physical examination. The story is frequently obtained from patients with myocardial damage that because of certain symptoms a physician was consulted who made an examination and assured the patient that he could find nothing wrong.

The studies of these patients are not to be regarded as complete until careful x-ray studies of the heart and great vessels and electrocardiograms have been made, although these methods yield little direct information regarding the function of the heart muscle. The important x-ray findings are changes in the size or shape of the heart, alterations in the great vessels and sometimes clouding of the lung fields. Recently progress has been made in the visualization of calcified valves and even calcification in coronary vessels. These findings, however, are of relatively minor importance. Many cases show no cardiac enlargement until failure occurs. As a matter of fact, not a few cases fail to show enlargement even in the presence of failure.

SUMMARY

Coronary arteriosclerosis tends to have a long latent or asymptomatic stage during which its recognition is usually difficult and not infrequently impossible. If, however, degenerative changes in the heart muscle have occurred, there tend to be significant alterations in the electrocardiogram. A survey of a group of executives suggested that latent coronary arteriosclerosis is common after the beginning of the fifth decade of life.

Following the latent stage there may be a stage of comparatively mild symptoms, which although not necessarily characteristic of heart disease should nevertheless arouse a sus-

picion of heart disease in the mind of the examiner.

The chief clinical manifestations of advanced coronary arteriosclerosis are angina pectoris, coronary occlusion, and circulatory insufficiency. The tendency in all cases is toward failure of the heart as a pump. This is the terminal stage unless death occurs suddenly from a vascular accident or from some intercurrent condition.

It is important to recognize the serious limitations of the conventional methods of clinical examination in the diagnosis of coronary sclerosis and its complications. X-ray and electrocardiographic study are essential to supplement but not to replace clinical observation. Recent advances in electrocardiographic technique and interpretation have greatly enhanced the value of this procedure. *36th and Spruce Streets.*

DISCUSSION

DR. O. S. ALLEN (Wilmington): First I want to congratulate Dr. Wolferth. He has covered the subject very thoroughly.

In this last group you showed, I was just wondering if you found that hypertension was associated with that particular type of cardiogram, or didn't they go into that? Do you remember? It was associated with hypertension?

DR. WOLFERTH: In some cases.

DR. ALLEN: Dr. Wolferth is one of the pioneers in this direct lead and he, probably more than any other man in the country, I think, has helped us out quite a bit on that. We routinely make the four direct leads, and I would like to know if we should add six or seven leads routinely. I would like to know, in cases where we really suspect coronary trouble, if he thinks we are justified in taking six, seven, or eight leads, and how much more information may we derive from the six, seven or eight. There is so much controversy at the present time, pro and con, that one hardly knows what to do. But in the four leads I don't think there is any argument about that at all.

There is another thing that is rather confusing to me. I believe it is generally considered that the absence of the down deflection, or the so-called Q wave, that both clini-

cally and cardiographically and in post-mortem work there is not much argument about the patient having had a coronary thrombosis. The confusing thing, though, to me is that occasionally and frequently you get cardiograms that have just a little down deflection and not very much, and I am at a loss at times to know just how to group that, or what status that may have.

I will appreciate it a lot if Dr. Wolferth will clear those things up. It is a great pleasure to have him with us, and again he has covered the subject very thoroughly.

DR. R. W. TOMLINSON (Wilmington): Mr. President and Dr. Wolferth: I feel that I am very deficient in this thing because I am probably saying things which are very trivial to Dr. Wolferth. I have had the privilege of hearing his elucidations at the clinic several times and it has always been with a great deal of pleasure and profit. I think this morning the modesty of his presentation and the lack of going into fineness of detail has been out of consideration of our receptive and appreciative ability. As I sat here and listened to the description of the T wave and the Q, R, S conflicts the thought occurred to me that perchance other men had the same difficulty in appreciating what the portent of those deviations is just as I once did, and wondering if perchance, in the rendition of the report electrocardiographically, it might not be meet and expedient to incorporate in the report just what the definition of those graphic deviations conveys. It is possible for any one of us to achieve a familiarity with the nuisance detail over a broad scope of a field of medicine so that we will all be efficient and cognizant of the portent of just those things that are portrayed.

I remember reading with a great deal of pleasure the article by Dr. Wolferth in conjunction with Dr. Wood and Dr. Bellock, and I think probably Dr. MacMillan was also associated in the technique which was expressed in the taking of the chest leads, and in that text was espoused the fact that in accordance as to where the point of impingement of the electrode that was applied to the anterior part of the chest in intimate or remote continuity with the apex lead, in just so much would you get a probable deviation of the graphic print,

and I wanted to ask him if they still held to that belief.

On the other hand, quite recently I had the privilege of reading an article by Dr. Wolfarth relative to the portent of the M wave and the W wave with the coincident expression of the Q wave and probably the subsequent deflection or inversion of the T wave, and I wondered whether the concomitance of that factor was of prognostic import or whether they arrived sequentially, and what we were to gain in looking at the graphs in attempting interpretation.

I do know, from the privilege of basking in the sunlight of the wisdom which pours from his lips, that you had a master discuss this proposition with you this morning, and I am quite sure he can elucidate to the satisfaction of myself and the rest of us present. It certainly has been a privilege to hear him today.

DR. WOLFARTH: Mr. President, Members of the Society: It was not my purpose this morning to discuss the details or technique of electrocardiography. My purpose was to try to help sensitize everybody to the problem of coronary sclerosis and its complications; but since some of my sins have found me out, and various specific questions have been raised about electrocardiography, I will try to answer them as best I can.

In answer to Dr. Allen's question with regard to that last slide I showed, quite a few of this group of patients showed hypertension. I would say—I can't answer that question absolutely, but perhaps a quarter of them did.

There was a group there which had clear-cut evidences of myocardio damage. But out of those 65 cases there were at least 20 cases in which we found no other evidence of heart disease. A lot of them were obtained in the course of surveys of groups of people and we followed them along for years, and some of those people now, after five, eight, ten years, are flourishing just as much as they did then, and what fools we would have been to have given a bad prognosis just because they had an abnormal electrocardiogram.

Dr. Allen asked another question, and Dr. Tomlinson asked a question, and I think both can be answered together. That is, should

one multiply these chest leads? We have done it because we were interested in the problem of investigation and trying to find out just what we could. As a matter of fact, in my opinion one should make tests just as simple as they can be made, and I am quite sure that one chest lead is adequate for routine clinical work. However, Dr. Tomlinson, we still feel that the position of application of the electrode with reference to the heart is important, and if we think that a patient should show evidences of damage and we take an electrocardiographic lead with the electrode applied over the apex and obtain nothing significant, we would move it around a little bit, inside the body of the heart or outside, and occasionally we have been rewarded by getting evidences of damage in those other positions that we did not find in the conventional position. But it is extremely rare.

Another technical question which Dr. Allen asked me was the significance of very small downward deflections in chest leads. In our studies of normal students we have found that some of them have a very small downward deflection, certainly not exceeding two millimeters. That is an extremely small deflection, so we have tentatively accepted that as the dividing line. If this downward deflection is two millimeters we say a normal individual can show that. If it is less than two millimeters we regard it as suspicious for we have not thus far observed it in normal individuals.

Finally, the question—I don't know whether I understood this correctly—does the combination of the M or W wave and the Q-M in Lead 2, plus the Q wave in Lead 4, mean more than one of these alone?

DR. TOMLINSON: The question was whether the incidence of the W wave and the M wave concomitantly with the Q wave is more important than any one of the three manifestations alone, and if you would express to us just what you thought the portent was with the combination of Lead 1 or Lead 2, or together, or alone. In other words, whether it was a dependable criteria as immediate or subsequent evidence of coronary occlusion.

DR. WOLFARTH: I would say no to that. The M or W wave in Lead 2 makes us pick up our ears and study the patient very carefully

with the thought that he may have some damage to the heart. The Q wave in Lead 3 occurs under a great variety of circumstances. It may come as a result of posterior infarction. It may be caused by something no more important than a transverse position of the heart. We feel this Q wave has been tremendously over-emphasized in recent literature.

I suppose whenever you find two pathological findings together it is more evidence of trouble than if you find only one, and perhaps to that extent the combination of an M or a W wave plus a Q 3 wave would be more significant than when alone.

SURGERY OF TUMORS OF THE BRAIN*

FRANCIS C. GRANT, M. D.**
Philadelphia, Pa.

Brain tumors are not malignant in the strictest sense of the word, for they do not metastasize. They may infiltrate the bone or scalp by direct extension, but otherwise they do not spread beyond the limits of the central nervous system. In one particularly active type of glioma, tumor cells may be carried by the cerebro-spinal fluid from one part of the central nervous system to another and produce secondary growths. With this exception, intracranial tumors which have been completely extirpated will not recur.

The neurosurgeon and the patient with a brain tumor must face together one inexorable fact. Unless the tumor can be totally removed, death from that cause, after a longer or shorter period, is inevitable. There are two schools of thought based on this premise. One school advocates the complete removal of all tumors, and unhesitatingly performs wide block dissections in either the cerebral or cerebellar hemispheres in an effort to expose and to excise entirely a widely invasive growth. The second school is conservative and limits attempts at complete removal of invading tumors by free dissection to those situated in the tip of the right frontal, temporal or occipital horns or laterally in the cerebellar hemispheres.

However, the after-effects upon the physical and mental makeup of the patient must also be considered. To leave a patient permanently cured but permanently crippled is a result of questionable merit. The patient might well prefer the alternative of a limited existence under temporarily improved conditions. This is a difficult decision to make but one with which the neurosurgeon is all too frequently faced.

Technically, neurosurgery has progressed so far that there is little increase in operative mortality with more radical excision of tumors; much larger areas of the brain can be excised with little or no after-effects. Procedures considered extreme a decade ago have become almost routine. Gradually, as the surgeon's experience increases, the gap between complete extirpation of the tumor and "recovery" of the patient narrows. Nevertheless, the surgeon should not permit his desire to use the mechanical advances in neurosurgery to override physiologic and pathologic training. It must not lure him into foolhardy attempts to remove invasive tumors from vital parts of the brain by wide excision of adjacent tissue. Neurosurgery's greatest need is for surgeons well trained in recognizing the pathologic type of a tumor, who will control their attempts at removal by their knowledge of the physiology of the area of the brain affected.

From the surgical standpoint, brain tumors can be divided into three great classes: tumors arising from the envelopes of the brain or the arachnoid fibroblastomas and perineurial fibroblastomas; tumors arising from the pituitary gland and from the craniopharyngeal duct, or pituitary adenomas and the craniopharyngiomas; and lastly, most numerous and most important, tumors originating in neuroglial elements of the brain, the gliomas. The tumors composing the first and second of these groups are in the brain but not of it, since their cellular make-up is not of neuroglial origin. They do not infiltrate, but rather force the surrounding brain aside, hollowing out a space for themselves within it. They are encapsulated and their dissection from the brain follows plainly demarcated lines. Furthermore, since they arise from structures found on the surface of the brain, these tu-

*Read before the Medical Society of Delaware, Wilmington, October 8, 1936.

**Associate Professor of Neurosurgery, University of Pennsylvania.

mors are usually more accessible than the gliomas. The arachnoid fibroblastic tumors comprise approximately twenty per cent and the pituitary group another twenty per cent of all brain tumors. The third of these groups, the gliomas, make up from forty-five to fifty per cent of brain tumors. The last named, being composed of glial elements, spread more or less diffusely into the brain. It may be impossible to determine a definite boundary between tumor and normal brain. Adjacent normal brain tissue must be sacrificed to extirpate them completely.

Tumors arising from the brain envelopes are characterized by slow growth and occur from late adolescence to old age. The acoustic tumors always arise from the sheaths of the auditory nerves in the cerebello-pontine angle. The arachnoid fibroblastomas may be found either above or below the tentorium. When found supra-tentorially they are more common in front of the Rolandic fissure than behind it, along the great venous channels, such as the superior longitudinal sinus or springing from the arachnoid fibroblastic cell clusters along the olfactory groove or sphenoidal ridge.

The most common glandular tumors of the brain are those encroaching upon the pituitary region. In this area appear the craniopharyngiomas in children, the chromophile adenomas of the pituitary in adolescents and young adults, and the chromophobe adenomas in adults and elderly persons.

For practical purposes, from the surgical standpoint there are four important groups of gliomas: the glioblastomas, the astrocytomas, the medulloblastomas and lastly a group containing relatively rare types, such as the oligodendrogliomas, ependymomas, spongioblastoma polare and others. The glioblastomas and the medulloblastomas are rapidly growing, extensively invasive tumors, rarely completely removable, and unless wide areas of adjacent tissue are sacrificed, always recurring. These two groups appear commonly in certain brain areas at a definite age, the glioblastomas in the cerebral hemisphere of persons of fifty or sixty, the medulloblastomas in the cerebellar vermis in young children.

The astrocytomas are much less rapidly growing, less invasive, usually partially en-

capsulated, often cystic or calcified. If they can be removed with a minimum of adjacent normal brain tissue recurrence is unlikely. These tumors are found most often in the cerebellar hemispheres of children and the cerebral hemispheres of adults.

The relatively rare gliomas of the fourth or mixed group are all of a benign type and resemble the astrocytomas in their gross characteristics. The oligodendrogliomas are tumors of the cerebral hemispheres, often calcified, and occur in adult life. The ependymomas are benign and slow growing but offer a difficult surgical problem because of their situation in close proximity to the centricles. The spongioblastomas polare, unfortunately, usually attack the base of the brain and especially the optic nerves, chiasm and tracts, sometimes even the brain stem and cerebellum. Surgical removal is rarely possible.

Broadly speaking, the arachnoid tumors, the pituitary lesions and the gliomas are of most interest to the surgeon. The first and foremost problem to be solved is that of localization. A careful chronologic history of the development of symptoms and a painstaking and thorough neurologic examination, including visual fields, while most important, too often do not furnish sufficiently definite information. Determination of the position of the tumor, as above or below the tentorium, and its lateralization in one or the other cerebral hemisphere is not enough. As accurately as possible, the surgeon must know in which lobe of the brain the tumor lies and whether it is beneath or on the cortex. Since all cerebral tumors are attacked through a bone flap, it is imperative to be able to place the flap so that the tumor lies immediately beneath the center of the opening. In cerebellar tumors definite lateralization is less important because both cerebellar lobes are routinely exposed in a sub-occipital craniectomy; but it is extremely important to distinguish between sub and supra-tentorial tumors because the operative approach to these two areas is so entirely different.

Neurologic findings, while caused by involvement of a definite brain area, nevertheless do not indicate exactly whether the symptoms result from pressure upon that area from behind, from in front, or from within.

A frontal or parieto-occipital tumor may give signs just as suggestive of a motor-cortex lesion as does a tumor situated within the motor area. If, then, the motor region is exposed, the bone flap will be so placed that the tumor lies largely beneath its anterior or posterior edge, a great handicap in its removal.

The most definite information as to the position of the tumor may be afforded by roentgen-ray studies. By roentgen-ray studies, I mean not merely the discovery of calcification in the tumor, bony thickening or erosion suggestive of its position, or changes in the pituitary fossa or pineal shift, which give a clue as to the tumor's whereabouts, but much more important, the study of changes in the size, shape and position of the ventricular system after the introduction of air. Ventriculography is the solution of the first major neurosurgical problem, which is accurate localization. Without question, this method of determining the position of intracranial tumors has done more to extend the scope of neurosurgery and to increase the percentage of tumors successfully removed than any other one procedure. If there is any doubt in the surgeon's mind as to the location of the lesion, a ventriculogram should always be performed.

Once the tumor has been located, an attempt should be made to estimate its character prior to operation. Here the history, the rapidity of onset, the symptoms, the age of the patient, the position of the tumor and the roentgen-ray findings of thickened cranial bones or calcification within the mass are valuable. In the final analysis, however, it is impossible to distinguish in the majority of instances between relatively malignant and benign types. For this reason, every patient harboring a brain tumor should be operated upon, unless the tumor obviously involves the brain stem or is without doubt a metastatic malignant growth from cancer elsewhere.

The details of the operative procedure necessary for the exposure of the suspected area of the brain are irrelevant. A bone flap or a sub-occipital craniectomy have become standard surgical procedures and need no description here. With the exposure of the brain the second great problem in neurosurgery must be met. Of what type is the tumor

and how radical an attempt at removal is justified? Determination of the kind of tumor may sometimes be made by gross inspection, particularly if the tumor be an arachnoid fibroblastoma, but often a glioma, well encapsulated on the surface and with the dura adherent to it may be found upon the cortex and easily mistaken for a meningioma. However, such an error would not make much difference, for an attempt should always be made to extirpate a surface tumor regardless of its type. There are two quick methods available for immediate diagnosis. The first is supravital staining of fresh tissue; (1); and the second is frozen section. The value of these methods for the individual surgeon depends upon experience, but by either the degree of rapidity of growth of the tumor may be determined and a very shrewd estimate made of its type.

The arachnoid fibroblastomas afford the best prognosis of any group of intracranial lesions if they can be removed. These tumors grow so slowly, that if situated in relatively silent brain areas, they may reach very large proportions and yet produce few symptoms. Since arachnoid fibroblastomas arise from the fibroblastic cell nests in the arachnoid, a dural attachment is always found, often in the neighborhood of the great venous sinuses. Consequently, these lesions may in themselves be very vascular or surrounded by large blood vessels. Severe hemorrhage is the most serious surgical complication, although the recent introduction of electrosurgical methods (2) has made possible the removal of these tumors with much less bleeding. After exposure of part of the surface of the tumor, one is able to cut into it with the electric scalpel and scoop out its contents almost bloodlessly. As the tumor is gutted, the walls collapse and it may then be gently separated from the surrounding brain. As the collapsed shell of the tumor is slowly withdrawn, its vascular attachments to the brain can readily be seen and secured. Once the mass is removed and the adjoining cortical areas relieved of pressure, function returns rapidly. Relatively large tumors may be thus removed with little damage to the brain. These tumors, if located at the top of the motor cortex, may give comparatively early symptoms leading to

operation. However, they are rarely operated upon as early as was the patient reported by Spiller and Frazier (3), in whom a small fibroblastoma one and one-half centimeters in size was removed from the motor cortex. Jacksonian epilepsy affecting the arm was the predominating symptom which lead to operation.

Although it is better to remove a brain tumor at the first operation, the surgeon should never hesitate to terminate an attack upon a fibroblastoma, if necessary, and re-operate later. It is much more satisfactory to have a living patient with his tumor partly removed than to have a patient succumb to hemorrhage and operative shock from a complete extirpation. The results following complete removal of fibroblastomas are so good that no unnecessary risk should be taken.

When an arachnoidal or perineurial fibroblastoma is found in the posterior fossa, the problem is again one of accessibility and vascularity complicated by the close juxtaposition of important cranial nerves and vital medullary centers. Unless these tumors be very small, complete removal is rarely possible since they develop very gradually and even a large tumor may give but few signs. However, sub-occipital decompression with partial extirpation gives much satisfactory results for so long a period, that I feel conservative rather than radical methods should be chosen for the handling of fibroblastomas in the posterior fossa. Excision of the outer third of the cerebellum overlying the tumor is advisable as it permits much better exposure. Incision into the tumor and a sub-capsular enucleation constitutes the best method of attack. After the capsule has been collapsed, it may then be possible to free it from surrounding structures. The ninth, tenth, and eleventh nerves may be pushed gently off the lower pole of the tumor. Always the eighth and frequently the seventh nerves must be sacrificed if a total removal is done. If the tumor capsule is tightly adherent to the brain stem, that fragment must be left behind as annoying bleeding and injury to the medulla may follow an attempt at its withdrawal. If section of the seventh and eighth nerves were the only factor that stood between complete and incomplete extirpation

of these tumors, I would sacrifice them unhesitatingly, because hearing is usually impaired before operation and a facial paralysis, which may be repaired later by a facial-hypoglossal anastomosis, is a cheap price to pay for the complete removal of the tumor. Since damage to the vagus or brain stem may so frequently occur in spite of the most careful manipulation and may be so serious, total extirpation is not to be recommended except under the most favorable conditions.

Tumors springing from the pituitary gland, whether adenomas or craniopharyngiomas, should never be completely removed. The danger of damage to what little functioning pituitary gland remains is too great. Furthermore, the posterior part of these tumors impinges upon the third ventricle or mid-brain. Operative manipulation in this region is almost invariably followed by hyperthermia and death. Incision into the tumor capsule, evacuation and collapse, with gentle freeing of the capsule from the adjacent optic nerves is all that should be attempted. The results of this conservative treatment are very satisfactory, especially in the pituitary adenomas. The capsule of the craniopharyngiomas is frequently calcified and stiff, making complete collapse difficult, but since these tumors are cystic the evacuation of the fluid content produces at least partial collapse.

The great test of neurosurgical judgment is provided by the gliomas. The meningiomas afford a relatively simple problem—complete extirpation whenever possible. Pituitary tumors demand a capsular incision followed by sub-capsular enucleation and the removal of sufficient tumor and capsule to free the optic nerves as completely as possible. Total extirpation is recognized as impossible. The treatment of gliomas differs with the variety and position of the tumor and the philosophy of operator. Because these tumors infiltrate the brain, their removal necessitates absolute destruction of brain tissue with resulting permanent disability.

Since the treatment of gliomas depends upon personal experience, I can present only my own opinion. If a glioblastoma is encountered, I confine my attempts at removal strictly to the tumor itself regardless of its position. I do not feel that I have ever been able

completely to extirpate a neoplasm of this type successfully, no matter how far the excision has been carried. The removal should be limited definitely to that tissue which is unquestionably tumor, taking enough tissue to provide for a generous intracranial decompression and augmenting this by removal of the lower two-thirds of the bone flap as well as of the bone at the base of the flap to afford plenty of room for post-operative edema.

If a mid-cerebellar tumor is verified at the operating table as a medulloblastoma, I believe that enough should be removed to unblock the aqueduct and restore cerebrospinal fluid circulation, but complete removal is attended by such great hazards and is so difficult of accomplishment as to be entirely unjustifiable.

The remaining types of gliomas, astrocytoma, oligodendroglioma, ependymoma, etc., I do try to extirpate completely, especially if they are found in the right cerebral hemisphere in a right-handed individual. Enucleation with but little damage to surrounding brain tissue is often possible. When such a tumor is situated in the right frontal, right temporal or either occipital lobe, excision of the entire lobe is justified if complete removal of the tumor can, thereby, be accomplished. Astrocytomas in the mid-line of the cerebellum should be vigorously attacked, as complete extirpation can be done and cure not infrequently results. If a glioma is found in the outer two-thirds of either cerebellar lobe, complete excision is justifiable. Removal of a cerebellar hemisphere leaves very few symptoms provided that the dentate nucleus is not damaged. Gliomas of the motor cortex, whether or not pre-operative paralysis is complete, should be handled less radically. For obvious reasons, I do not attempt block dissections in motor cortex tumors. Extirpation limited to the tumor itself will often restore function, temporarily at least, to such an extent that I feel that a shorter but more useful life is to be preferred to a cure with permanent disability. When the lesion is cystic, as it often is, every effort should be made to extirpate completely the small mural nodule of tumor, regardless of its position.

Unfortunately, the roentgen-ray and ra-

dium have little value for the treatment of brain tumors. In but two groups do either of these agents have the slightest effect. The medulloblastomas and the primary pituitary adenomas may be benefited temporarily; but in the other groups of gliomatous tumors and certainly in the fibroblastomas in which roentgen-rays have been reported as effective, a decompression must certainly have been performed at the time of operation, whether or not the tumor was removed. A decompression over the site of a tumor will, in many instances, be followed by an improvement in symptoms, which if roentgen-rays have been used, is credited to this therapy. To arrive at a correct evaluation of the worth of roentgen-rays in brain tumors, especially when decompression has been done, it is necessary to wait until the maximum improvement has been obtained and evidence of recurrence appears. If, then, following the use of the rays, the clinical picture clears up, the improvement can be attributed to the effect of roentgen-ray treatment alone. If this more rigid standard be accepted but few tumors will prove to be amenable to the roentgen-rays.

The success or failure of a surgical attack on a brain tumor depends primarily upon accurate localization. With the tumor well exposed in the operative field the results hinge upon the type of tumor and the area of the brain involved. Every effort should be made completely to extirpate fibromas and the benign gliomas. Pituitary tumors should be treated conservatively as complete removal is impossible. Furthermore, particularly in the adenomas, roentgen-ray therapy often helps to prevent recurrence. In the widely invasive gliomas sufficient tumor tissue should be removed to allow for an internal decompression, thus compensating for post-operative edema of the brain. Large block dissections are not advisable in either hemisphere because of the later effects upon the mentality.

3400 Spruce Street.

BIBLIOGRAPHY

1. Cushing, Harvey and Eisenhardt, Louise: *Diagnosis of Intracranial Tumors by Supravital Technique*. Amer. Jour. Path., 6:541, 1930.
2. Cushing, Harvey: *Electrosurgery as an Aid to the Removal of Intracranial Tumors*; Surg. Gyn. and Obst., 47:731, 1928.
3. Spiller, William G. and Frazier, Charles H.: *Successful Removal of Brain Tumors*, Arch. Neurol. and Psych., 6:476, 1921.

(Concluded on Page 50)

EDITORIAL

DELAWARE STATE
MEDICAL JOURNAL

*Owned and published by the Medical Society of Delaware.
Issued about the twentieth of each month under the su-
pervision of the Publication Committee.*

W. EDWIN BIRD, M. D. _____ EDITOR
Du Pont Building, Wilmington, Del.
WILLIAM H. SPEER, M. D. _____ Associate Editor
917 Washington St., Wilmington, Del.
M. A. TARUMIANZ, M. D. _____ Associate Editor & Bus. Mgr.
Du Pont Building, Wilmington, Del.
Telephone, Wilmington, 4308

Articles sent this Journal for publication and all those read at the annual meetings of the State Society are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Manuscript should be sent in typewritten, double spaced, wide margin, one side only. Manuscript will not be returned unless return postage is forwarded.

The right is reserved to reject material submitted for either editorial or advertising columns. The Publication Committee does not hold itself responsible for views expressed either in editorials or other articles when signed by the author.

Reprints of original articles will be supplied at actual cost, provided request for them is attached to manuscripts or made in sufficient time before publication.

All correspondence regarding editorial matters, articles, book reviews, etc., should be addressed to the Editor. All correspondence regarding advertisements, rates, etc., should be addressed to the Business Manager.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

It is suggested that wherever possible members of the State Society should patronize our advertisers in preference to others as a matter of fair reciprocity.

Subscription price: \$2.00 per annum in advance. Single copies, 20 cents. Foreign countries: \$2.50 per annum.

VOL. VIII MARCH, 1936 No. 3

"CALIFORNIA RESOLUTES"

"The Council of the California Medical Association of January 19, 1935, unanimously adopted a resolution calling upon the Board of Trustees of the American Medical Association to take action to prevent Dr. Morris Fishbein 'from capitalizing upon his position and using it for his personal financial profit.' The resolution directs that the Board of Trustees require 'its paid employee' to devote his entire time to the editorial duties of his office.

"Regardless of any personal feelings we might have toward Dr. Fishbein, either favorable or unfavorable, we consider the California resolution a classic example of rocking the boat in the middle of a storm. It answers that age-old question, 'what's wrong with the medical profession.' Here we are standing at the end of the pendulum swing toward

socialized medicine and California takes the occasion to promote internecine warfare.

"California points out that Dr. Fishbein has for some years been conducting a syndicated health column in the local press of the country and that in addition to his name is appended the title, 'Editor of the Journal of the American Medical Association and Hygeia.' Personally, we think it would be most unfortunate to omit the title. Without the title, Dr. Fishbein's thousands of readers would probably pay little attention to his advice on periodic health examinations, on the danger of patent medicines, on the wiles and pitfalls of quackery, and on many related subjects of extreme importance to the medical profession.

"It is charged that Dr. Fishbein receives financial returns from his column 'to his own personal profit and gain.' So what! Does California resent the fact that Dr. Fishbein is paid for his column? We don't think so. Through his column Dr. Fishbein has acquired an international reputation. This was made possible through his connection with the American Medical Association. The only question involved is whether or not Dr. Fishbein is using his reputation and influence for the best interests of the medical profession. If he is, there is no cause for complaint. If he is not, then California should say so. The question of receiving pay for his health column is mere pettifoggery.

"If Dr. Fishbein should stop his health column, some one would immediately take his place. Every daily newspaper worthy of the name is going to carry a health column, whether it is written by Dr. Fishbein or by the assistant professor of neurocalometry at the Texarkana Chiropractic College. Dr. Fishbein is not engaged in the practice of medicine. He has no incentive to lure patients to his doorstep. It seems to us far better to sponsor and promote the health column of our own editor, than to quit and turn the field over to God knows who.

"We feel that the action of the Council of the California Medical Association is unusually petulant. Even the wording of their reso-

lution, which evades mentioning Dr. Fishbein's name, but speaks of him as 'employed editor' and 'paid employee,' smacks of peevish animosity. It is our guess that all the arch enemies of the American Medical Association will swing with great glee upon the coat tails of the California resolution.

"The resolution was signed by Dr. F. C. Warnshius, secretary of the California Medical Association. Dr. Warnshius was defeated for re-election as Speaker of the House of Delegates of the American Medical Association at the Atlantic City convention last June."

The above editorial, from the *West Virginia Medical Journal* for March 1936, so aptly expresses the feeling of the Delaware doctors that we have quoted it in toto.

Not fifteen minutes ago we turned away from Station WJZ, after listening to "America's Town Meeting," in which Dr. Fishbein debated with Michael M. Davis, Ph. D., the subject of Health Security and the American Public, but which, in the question box that followed, promptly developed into a debate on socialized medicine. Needless to say, it was largely a one-sided debate as to force and fact, a circumstance the audience was quick to grasp, to judge from the applause given to Dr. Fishbein as compared with that given to his opponent. With such a master of exposition and argument, of quip and repartee within the folds of the regular profession we, who are orthodox and who do not underestimate the strength of the enemy, are thankful for Fishbein, and if he, personally, is able to "make something on the side," more power to him! We agree with Dr. Bloss that California's action is "unusually petulant" and exhibits "peevish animosity;" it is one more illustration of the turbulent times that seem to be California's lot these days.

After all, what we need is more of Fishbein and more Fishbeins. The fundamental thought that perturbs us is: what are we going to do when there is no Fishbein?

Surgery of Tumors of the Brain

(Concluded from Page 48)

DISCUSSION

DR. M. A. TARUMIANZ (Farnhurst): I don't think there is anything that anybody can discuss, except to express our deep grati-

tude for the wonderful presentation, a masterpiece, of Dr. Grant's paper. I think we should realize that Dr. Grant has reminded us again that we should not be careless in diagnosing brain tumors. Obviously it is necessary to diagnose a brain tumor in the early stage so that the neurosurgeon can attempt to evaluate the time to the best of his practical knowledge. I feel that Dr. Grant has emphasized that point, that we should recognize the brain tumor very early. And second, which he did not mention, which naturally was not ethical from his point of view to mention, but we can realize ourselves that general surgeons should not attempt to do brain surgery. At least that is my opinion and I always have adhered to that particular idea or principle, and have referred all our brain tumors to our staff visiting neurosurgeon, Dr. Frazier or his assistant. I think it is very important for us to realize that and adhere to it. Brain surgery, or neurosurgery, is entirely a specific field in surgery. I do not wish to criticize anyone, but it is quite frequently that we have unfortunate results from a general surgeon's attempt to assist a patient with brain tumor.

DR. W. EDWIN BIRD (Wilmington): I might second what Dr. Tarumianz just said from the standpoint of the general surgeon. I think the old saying is that fools rush in where angels fear to tread. I know I am no angel, but I hope to the good Lord I am no fool.

PRESIDENT NILES: Is there any other discussion? I might say at this time that Dr. Grant has us at a disadvantage. He speaks of a subject upon which the average practitioner looks with awe because of his lack of knowledge of that subject. I am sure I voice the sentiment of this Society when I say we greatly appreciated your talk here this afternoon. Have you anything to add, Dr. Grant?

DR. GRANT: I have nothing to say, gentlemen, except to thank you very much for the privilege of being here and your patience in listening to me. I was a little hesitant about coming down and inflicting brain tumors on even an intelligent group like this because, as Dr. Niles has said, it is a little language of its own, but I think you have been very patient with me, and I want to thank you again for the privilege of being here.

WOMAN'S AUXILIARY: A. M. A.

On February 11th, 1936, a regular business meeting of the Woman's Auxiliary to the Medical Society of Delaware was held at the Academy of Medicine in Wilmington. Announcement was made that the National Convention will be held in Kansas City, Missouri, May 11th to 15th. The next state meeting will be held in April. Mrs. Butler reported 94 garments made for the Visiting Nurse Association since October, 35 of these having been made in January.

After the business meeting tea was served in the library, at which time our guests, the Wilmington City Federation of Women's Clubs, inspected the Academy. Mrs. C. L. Hudiburg was in charge of arrangements for this very successful affair.

On February 18th, a sewing meeting was held at the home of Mrs. Willard Smith, when several new members were present. The next sewing meeting will be held on March 21st at the home of Mrs. Gerald Beatty, 1621 N. Franklin street.

MISCELLANEOUS**Program Completed for Post Graduate Institute**

Fifty-four of the ablest medical educators in a city noted for its medical education—Philadelphia—constitute the faculty of the Philadelphia County Medical Society's Post Graduate Institute, to be held April 20 to 24 in the Bellevue-Stratford Hotel, according to the complete program, just issued.

Considerable interest has been expressed in this undertaking, which the county society hopes to make an annual event, and many physicians already have sent in their registrations. Notices have been sent to doctors throughout Pennsylvania and the nearby States and a large attendance is expected.

Beside the regular program of lectures, those attending the Institute will have an opportunity to hear Dr. Frank Lahey, of Boston, Director of the Lahey Clinic there, deliver the J. Chalmers DaCosta Foundation oration at the Philadelphia County Medical Society's meeting on the evening of April 22.

The Institute's general subject will be cardiovascular and renal diseases, which the essayists will discuss from many angles. One approach will be prevention, to which little

attention was paid by doctors of the older schools, which is recognized as a very practical mode of attack today.

Etiology will receive much emphasis, since the cause and effect relationship between disturbances of the blood vascular and the renal systems is so often demonstrable but difficult to accurately define. The effect of ureteral lesions and obstructions upon the kidneys will be discussed in several papers, also, as will the matter of differential diagnosis among the forms of nephrosis and glomerulonephritis.

Of particular interest to the surgeons will be many of the newer treatments for heart disease, including alcohol injections, cervical sympathectomy and posterior root injections for relief of angina pectoris pain. Such procedures as cutting splanchnic nerve roots, and removal of the suprarenal glands for the relief of essential hypertension, total thyroidectomy for certain heart conditions, section of the sympathetics for Raynaud's and Buerger's disease, wiring of aneurism, etc., also are to be touched upon.

Evaluation of various vaccines employed in bacterial endocarditis, discussion of new methods of using digitalis, use of the various diagnostic aids in both heart disease and renal ailments are other interesting phases of the program.

While the Institute's chief appeal to the doctors in this section of the country should be the lectures themselves, there is an added attraction in that the Institute is being held in a city which has for two centuries been a center of medicine. Since 1717 when John Kearsley began to instruct young men in the practice of medicine its reputation as a training ground for physicians has been of the finest. It boasts the first hospital, the first medical text book, the first clinical medical lecture and many other medical "firsts."

The Philadelphia County Medical Society was suggested at a meeting on December 1, 1848, and was founded January 16, 1849. From the very beginning it took an active leadership in preventive medicine, sanitation, and other things affecting public health. Its second resolution, April 17, 1849, was in the interest of the general practice of vaccination, and the first national sanitary congress took place in Philadelphia in 1857.

Propaganda for Reform

Potency of Ampoules of Pitressin. The Council on Pharmacy and Chemsitry reports that in New and Nonofficial Remedies, 1935, the "pressor" potency of Ampoules of Pitressin (Parke, Davis & Co.) is defined as follows: ". . . each cubic centimeter contains 20 pressor units. . . ." Too late for revision of this description, Parke, Davis & Co. informed the Council that the standardization of its product had been changed so that each cubic centimeter was to contain but 10 pressor units. Recently the firm informed the Council that it had decided to restore Ampoules of Pitressin to the original potency of 20 units per cubic centimeter and that therefore revision of the N. N. R. description would not be needed. In order that the medical profession might be informed, the Council has authorized publication of the foregoing statement. (*J. A. M. A.*, February 1, 1936, p. 382).

Trichloroethylene in Angina Pectoris.—A report appearing in the Associated Press news December 30, 1935, contained the following statements:

"Instantaneous relief for the pain of angina pectoris and complete cure for most sufferers from the disease was claimed today by Dr. John C. Krantz, Jr., of the University of Maryland in a report which he read to the American Association for the Advancement of Science. The cure, he said, is a drug called trichloroethylene, one cubic centimeter of which is snuffed into the nose when the pains and heart compression of angina pectoris begin. It gives relief within one second."

An inquiry was sent to John C. Krantz, Jr., Ph. D., professor of pharmacology at the University of Maryland School of Medicine. Dr. Krantz replied as follows:

"My association and I reported at the Section of Medical Sciences of the American Association for the Advancement of Science the mechanism of the action of trichloroethylene in the treatment of angina pectoris, which was studied clinically in the institution of Dr. William Love, Jr.

"It is unfortunate that the Associated Press misinterpreted the presentation and stated that we had discovered a cure for the disease. Dr. Love's patients were relieved in

most cases from the distress and apprehension of angina pectoris by the inhalation of 1 cc. of the drug, morning and evening. I shall be pleased if you will emphasize to those who inquire from you the fact that we have not discovered a cure for angina pectoris."

It may be pointed out that trichloroethylene is a drug to be prescribed with caution. (*J. A. M. A.*, February 8, 1936, p. 485).

There Ought to Be a Law

(Excerpts from an address by Dr. P. H. Dee, Professor of Impractical Political Sciences and Theory of Theories, Anyold College.)

Mrs. O'Grady has pernicious anemia. She is decidedly anemic and it is very, very pernicious. Her income is low, lower than liver is high, lower even than her hemoglobin percentage or erythrocyte count.

What do the butchers intend to do about the millions of O'Gradys now living in this country? Certainly they cannot coldly dodge the issue. They have the liver, the O'Gradys have the anemia. How about a liver-prepayment scheme, compulsory upon all alike? Liver is too high anyhow. The Committee on the Cost of High Livers has shown that liver can be produced at less than present prices, provided the butchers abandon the individualistic profit-system. There ought to be a law.

Tim O'Sullivan has broken arches. He cannot work any longer. The plantar surfaces of his metatarsal arches slap the pavement as he shuffles along. His spirit is lower than his arches. Also he is decidedly low-income.

What do the shoe people intend to do about the hundreds of millions of O'Sullivans? Who is going to provide anterior heels, health-spots, lockes, ground grippers or arch preservers? Have you ever read the report of the High Cost of Low Arches Committee? Do you know that shoes can be made for much less than O'Sullivan has to pay? This matter can be taken care of easily and painlessly by Compulsory Dog Insurance. There ought to be a law.

Old Mr. and Mrs. Leary both suffer from Presbyopia. The oculist, who refracted them for nothing, gave them each a prescription for glasses suitable to their respective conditions. But they, likewise, are low-income. They cannot afford the prescribed lenses.

They have only a single Woolworth pair to share between them. They have to get Mrs. Fogarty to tell them the places and hours of the Townsend meetings.

Both need new upper and lower plates. Mrs. Leary's corset is incompetent, and her husband's truss has failed lamentably of late. His ear-trumpet is cracked and her nail file is lost. How can low-income people, such as these, contend against such hazards?

Are the glass, steel and rubber industries cognizant of the millions of millions of Learys and of the outrageous social injustice that their individual cases portray? Can anyone, in the face of such instances as these, oppose an equitable prepaid insurance against these necessities of security and well-being? Truly there ought to be a law!—*Med. Reporter*, February 15, 1936.

BOOK REVIEWS

The Human Foot: Its Evolutionary Development, Physiology and Functional Disorders. By Dudley J. Morton, M. D. Pp. 244. Cloth. Price, \$3.00. New York: Columbia University Press, 1935.

This monograph is divided into three parts. The first deals with evolutionary data extremely interesting and instructive, concise and related in a pleasing manner. The second part deals with physiology of the human foot as it has finally evolved to its present form. It stresses the formation of the boney longitudinal arch as well as the equally important plantar fascia which is considered a necessary counterpart to the boney arch. This arch is divided into components each one of which includes one metatarsal. If for any reason one of these component arches is not so constructed that the exact amount of weight is thrown upon it at the time that the weight is thrown on the other components then there results a foot strain. This is seen best in the short first metatarsal where the results of an incomplete weight thrust throw an excessive amount of weight on the second metatarsal which consequently enlarges. The third portion deals with special methods of treatment based on the etiology outlined above.

The book as a whole is quite valuable to anyone interested in the problem and would benefit many a general practitioner who is constantly being called upon to advise for arch strain.

The Doctor

When you don't feel well
Whom do you tell?

The doctor.

Who gives you pills
And cures your ills?

The doctor.

Who looks at your tongue
To learn what is wrong?

The doctor.

When your fever runs high
And you think you'll die

The doctor

Pulls you through
And what do you do?

For the doctor

You take his pills
That cure your ills
And make him wait
You pay him late.

Now doctors too
Must live you know

And he must keep
His wife and "sheep"

He too has bills that he must meet

So pay him now, let me repeat

That freed from pain you now can smile
So remove your name from Doc's bill file.

—Contributed

100% Wholewheat Bread

by



FREIHOFFER

Guaranteed

Pure
Clean and
Wholesome

A Generous Sample to Every
Doctor

Writing "FREIHOFFER"
Wilmington

1789—MEDICAL SOCIETY OF DELAWARE—1936

OFFICERS AND COMMITTEES FOR 1936

FIRST VICE-PRESIDENT: Meredith I. Samuel, Wilmington
 SECOND VICE-PRESIDENT: C. G. Harmonson, Smyrna
 PRESIDENT: Joseph B. Waples, Georgetown
 SECRETARY: William H. Speer, Wilmington
 TREASURER: A. Leon Heck, Wilmington

COUNCILORS
 James Martin, Magnolia
 Bruce Barnes, Seaford
 J. D. Niles, Townsend

DELEGATE: Charles E. Wagner, Wilmington
 ALTERNATE: Stanley Worden, Dover

STANDING COMMITTEES

COMMITTEE ON SCIENTIFIC WORK

James Beebe, Lewes
 W. T. Chipman, Harrington
 W. H. Speer, Wilmington

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

I. J. MacCollum, Wyoming
 Wm. Marshall, Milford
 J. H. Mullin, Wilmington
 J. B. Waples, Georgetown
 W. H. Speer, Wilmington

COMMITTEE ON PUBLICATION

W. E. Bird, Wilmington
 M. A. Tarumians, Farnhurst
 W. H. Speer, Wilmington

COMMITTEE ON MEDICAL EDUCATION

E. R. Mayerberg, Wilmington
 Wm. Marshall, Milford
 K. J. Hocker, Millville

COMMITTEE ON HOSPITALS

R. C. Beebe, Lewes
 L. J. Jones, Wilmington
 Stanley Worden, Dover

COMMITTEE ON NECROLOGY

E. R. Steele, Dover
 G. B. Pearson, Newark
 R. B. Hopkins, Milton

COMMITTEE ON CANCER

G. C. McElfrick, Wilmington
 B. M. Allen, Wilmington
 Lewis Booker, New Castle
 G. W. K. Forrest, Wilmington
 E. H. Lenderman, Wilmington
 I. J. MacCollum, Wyoming
 S. M. Marshall, Milford
 J. R. Elliott, Laurel
 E. L. Stambaugh, Lewes

COMMITTEE ON MEDICAL ECONOMICS

H. L. Springer, Wilmington
 W. E. Bird, Wilmington
 I. M. Flinn, Wilmington
 W. H. Speer, Wilmington
 A. J. Strikol, Wilmington
 O. V. James, Milford
 J. S. McDaniel, Dover
 W. T. Jones, Georgetown
 A. C. Smoot, Georgetown

COMMITTEE ON TUBERCULOSIS

J. P. Wales, Wilmington
 J. M. Barsky, Wilmington
 L. D. Phillips, Marshallton
 M. I. Samuel, Wilmington
 R. W. Tomlinson, Wilmington
 W. C. Deakne, Smyrna
 W. T. Chipman, Harrington
 H. M. Manning, Seaford
 James Marvil, Laurel

COMMITTEE ON SYPHILIS

B. S. Vallett, Wilmington
 I. L. Chipman, Wilmington
 N. R. Washburn, Milford

COMMITTEE ON CRIMINOLOGIC INSTITUTES

M. A. Tarumians, Farnhurst
 T. H. Davies, Wilmington
 H. V. P. Wilson, Dover

REPRESENTATIVE TO THE DELAWARE ACADEMY OF MEDICINE

W. O. LaMotte, Wilmington

ADVISORY COMMITTEE, WOMAN'S AUXILIARY

P. R. Smith, Wilmington

Catherine Gray, Bridgeville
 U. W. Hocker, Lewes

WOMAN'S AUXILIARY

MRS. LAURENCE J. JONES, President, Wilmington

MRS. W. E. SMITH, Vice-Pres. for New Castle County, Wilm.
 MRS. I. W. MAYERBERG, Vice-Pres. for Kent County, Dover
 MRS. E. L. STAMBAUGH, Vice-Pres. for Sussex County, Lewes

MRS. IRA BURNS, Recording Secretary, Wilmington

MRS. S. W. RENNIE, Corresponding Secretary, Wilmington
 MRS. W. F. PRESTON, Treasurer, Wilmington

NEW CASTLE COUNTY MEDICAL SOCIETY—1936

Meets the Third Tuesday

J. H. MULLIN, President, Wilmington.
 C. C. NEESE, Vice-President, Wilmington.

ROGER MURRAY, Secretary, Wilmington.
 N. W. Voss, Treasurer, Wilmington.

Delegates: W. E. Bird, J. W. Butler, I. L. Chipman, D. T. Davidson, I. M. Flinn, A. L. Heck, L. J. Jones, J. H. Mullin, Roger Murray, L. S. Parsons, L. J. Rigney, Grace Swinborne, R. W. Tomlinson, J. P. Wales.

Alternates: B. M. Allen, L. W. Anderson, Earl Bell, Ira Burns, H. L. Heitefuss, J. S. Keyser, R. T. LaRue, G. C. McElfrick, E. R. Miller, L. D. Phillips, J. A. Shapiro, A. J. Strikol, B. S. Vallett, C. E. Wagner.

Board of Directors: I. Lewis Chipman, C. P. White, J. M. Barsky, J. H. Mullin, Roger Murray.

Board of Censors: E. H. Lenderman, G. C. McElfrick, W. V. Marshall.

Program Committee: C. C. Neese, J. H. Mullin, Roger Murray.

Legislation Committee: G. C. McElfrick, J. H. Mullin, J. D. Niles.

Membership Committee: A. L. Heck, A. B. Gruver, Minna Sosnov.

Necrology Committee: R. R. Tybout, J. J. Cassidy, R. W. Tomlinson.

Nomination Committee: E. R. Mayerberg, D. T. Davidson, J. M. Barsky.

Audits Committee: Earl Bell, G. A. Beatty, W. W. Lattomus.

Public Relations Committee: E. R. Mayerberg, O. S. Allen, C. E. Wagner.

Medical Economics Committee: W. E. Bird, Ira Burns, W. H. Speer, A. J. Strikol, J. P. Wales.

KENT COUNTY MEDICAL SOCIETY—1936

Meets the First Wednesday

C. J. PRICKETT, President, Smyrna.
 H. V. P. WILSON, Vice-Pres., Dover.
 A. V. GILLILAND, Sec.-Treas., Smyrna.

Delegates: W. T. Chipman, Harrington; J. S. McDaniel, Dover; C. J. PRICKETT, Smyrna.

Censors: L. L. Fitchett, Felton; Stanley Worden, Dover; N. R. Washburn, Milford.

DELAWARE ACADEMY OF MEDICINE—1936

Open 10 A. M. to 5 P. M. and Meeting Evenings

LEWIS B. FLINN, President

CHARLES E. WAGNER, First Vice-President.

E. HARVEY LENDERMAN, Second Vice-President

JOHN H. MULLIN, Secretary

WILLIAM H. KRAEMER, Treasurer

Board of Directors: W. S. Carpenter, H. F. du Pont, C. M. A. Stine, F. G. Tallman, S. D. Townsend.

DELAWARE PHARMACEUTICAL SOCIETY—1936

G. W. BRITTINGHAM, President, Wilmington.

E. J. ELLIOTT, 1st Vice-Pres., Bridgeville.

F. E. BRERETON, 2nd Vice-Pres., Milford.

P. P. POTOCKI, 3rd Vice-Pres., Wilmington.

ALBERT BUNIN, Secretary, Wilmington.

ALBERT DOUGHERTY, Treasurer, Wilmington.

Board of Directors: H. P. Jones, Smyrna; T. S. Smith, Wilmington; W. L. Morgan, Wilmington; P. P. Potocki, Wilmington; G. W. Brittingham, Wilmington.

Legislative Committee: Thomas Donaldson, Wilmington, Chairman.

SUSSEX COUNTY MEDICAL SOCIETY—1936

Meets the First Thursday

A. C. SMOOT, President, Georgetown.
 G. E. JAMES, Vice-President, Selbyville.
 E. L. STAMBAUGH, Secretary-Treasurer, Lewes.

Delegates: G. Metzler, Jr., J. R. Elliott, G. M. Van Valkenburgh.

Alternates: Bruce Barnes, Howard Leates, K. J. Hocker.

Censors: K. J. Hocker, U. W. Hocker, W. T. Jones.

Program Committee: Carlton Fooks, Floyd Hudson, G. V. Wood.

Nominating Committee: Carlton Fooks, W. T. Jones, J. R. Elliott.

Historian: R. C. Beebe.

DELAWARE STATE BOARD OF HEALTH—1936

R. E. Ellegood, M. D., President, Wilmington; Mrs. F. G. Tallman, Vice-President, Wilmington; Stanley Worden, M. D., Secretary, Dover; Mrs. Charles Warner, Wilmington; Margaret I. Handy, M. D., Wilmington; Mrs. Anna D. Brewington, Delmar; J. Paul Wintrop, D. D. S., Wilmington; Arthur C. Jost, M. D., Executive Secretary and Registrar of Vital Statistics, Dover.

DELAWARE STATE DENTAL SOCIETY—1936

W. C. STEWART, JR., President, Wilmington.

W. R. STAATS, Vice-President, Wilmington.

R. R. WIER, Secretary, Wilmington.

P. A. TRAYNOR, Treasurer, Wilmington.

R. E. PRICE, Librarian, Wilmington.

Councilors: P. K. Musselman, Newark; Charles Cannon, Georgetown; Morris Greenstein, Wilmington.

Delegate to A. D. A.: P. A. Traynor, Wilmington. Alternate: Clyde Nelson, Milford.

N. B. DANFORTH, Inc.

WHOLESALE DRUGGIST

Agents for all the

Principal Biological,
Pharmaceutical and
General Hospital
Supplies

Full and Fresh Stock Always on Hand

We Feature CAMP Belts

.. fitted by a graduate of the Camp school

Expert Fitters of Trusses

Oxygen Also Supplied

SECOND AND MARKET STREETS

WILMINGTON, DELAWARE

SINCE 1874

it has been our aim to have our goods represent greater value for the amount of money expended than can be supplied by any other house. Our connections and facilities enable us to supply the freshest of

FRUITS AND VEGETABLES
in Season and Out
GEORGE B. BOOKER COMPANY
102-104-106 East Fourth St.
Wilmington, Delaware

**ICE SAVES
FOOD
FLAVOR
HEALTH**

For a Few Cents a Day

SMITH & STREVIG, Inc.
WILMINGTON, DELAWARE
DISTRIBUTORS

Bay Surgical Dressings.

Eastman Duplitzed X-Ray Films.

Eastman Dental X-Ray Films.

Johnson & Johnson Aseptic Dental
Specialties.

Cook Carpules—Syringes.

Sherman Vaccines and Ampoules.

Squibb Vaccines and Arsenicals.

Searle Bismuth and Arsenicals.

Becton, Dickinson Luer Syringes and
Thermometers.

Clapp's Baby Vegetable Foods.

PRICES ON APPLICATION

PROMPT DELIVERY

Delicious—Pure—Nutritious Year in and Year Out



Garrett, Miller & Company

Electrical Supplies

Heating and Cooking Appliances

G. E. Motors

N. E. Cor. 4th & Orange Sts.

Wilmington - - - Delaware

"MO-KO"

A Steel Cut Cereal Beverage

Made Like Coffee, Tastes Better

The highest quality product on the market.

If you have a supply of coffee on hand, Mo-Ko will blend in equal proportions, improve the flavor and reduce the cost.

Mo-Ko is guaranteed to give satisfaction or money refunded without quibble.

Prices and Samples on Request

The John F. Bauer Company

Bauer Building

Elmira - - - New York

Everything the Hospital may need

in: HARDWARE
CHINA WARE
ENAMEL WARE
ALUMINUM WARE
PAINTS
POLISHES
WASTE RECEPTACLES
JANITOR SUPPLIES
CUTLERY

Delaware Hardware Company

(Hardware since 1822)

2nd and Shipley Streets

Wilmington, Del.

For High Quality of Seafood:

Fresh-picked crab meat, shrimp, scallops, lobsters, fresh and salt water oysters.

*All Kinds of Other Seafood
Wholesale and Retail*

Wilmington Fish Market

705½ KING ST.

For Rent

Flowers . . .

Geo. Carson Boyd

at 216 W. 10th Street

Phone: 4388

Not Just A Lumber Yard

*but a source of supply for
almost any construction
or maintenance material.*



"Know us yet?"

J. T. & L. E. ELIASON
INC.

Lumber—Building Materials

Phone New Castle 83

NEW CASTLE :: DELAWARE

PARKE'S Gold Camel TEA BALLS

INDIVIDUAL SERVICE

"Every Cup a Treat"

L. H. PARKE COMPANY

Coffees Teas Spices

Canned Foods Flavoring Extracts

Philadelphia :: :: Pittsburgh

*Blankets—Sheets—Spreads—
Linens—Cotton Goods*

Rhoads & Company

Hospital Textile Specialists Since 1891

Manufacturers—Converters

Direct Mill Agents

Importers—Distributors

MAIN OFFICE

401 North Broad Street, Philadelphia, Pa.

MILLS

Philippi, W. Va.

Baynard Optical Company

Prescription Opticians

We Specialize in Making
Spectacles and Lenses
According to Eye Physician's
Prescriptions



5th and Market Sts.
Wilmington, Delaware

Plumbing, Heating
and Air Conditioning Equipment

SPEAKMAN COMPANY

Showers, Plumbing Fixtures and
Accessories for Hospitals and
Institutions

SALES AND DISPLAY ROOMS

816-822 Tatnall Street

Factory—30th and Spruce Streets

WILMINGTON DELAWARE

Telephone: 7261-7262-7263

Fraim's Dairies

Distributors of rich Grade
"A" pasteurized Guernsey and
Jersey milk testing about 4.80 in
butter fat, and rich Grade "A"
Raw Guernsey milk testing
about 4.80. This milk comes
from cows which are tuberculin
and blood tested.

Try our Sunshine Vitamin
"D" milk, testing about 4%,
Cream Butter Milk, and other
high grade dairy products.

VANDEVER AVENUE &
LAMOTTE STREET
Wilmington, Delaware

NEWSPAPER And PERIODICAL PRINTING

An important branch
of our business is the
printing of all kinds
of weekly and monthly
papers and magazines

The Sunday Star

Printing Department

Established 1881



*— and Chesterfields
are usually there*



*...they're mild
and yet
They Satisfy*

